



VIDE-V16505

AMSTRAD



PC2386-65

PERSONAL COMPUTER

SERVICE MANUAL

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TECHNICAL SPECIFICATION

Processor	: 80386
Clock Speed	: 20MHz
Wait States	: 0.05
Full Width Main Memory	: 32 bit
Maths Co-Processor Socket	: 80387
RAM (partly checked)	: 4MB
RAM Cache	: 64K / 35ns
Expansion Slots	: 5 x 16 bits
Asynchronous Bus Operation	: •
Hard Disk Option with 1:1 Interleave	: 65MB
Floppy Drives	: 1.4MB
External 5¼", 3½" Disk Drive &	: •
Tape Streamer Connector	: •
Hercules, CGA, EGA & VGA	: •
Compatible	: •
Bi-Directional Parallel Printer Port	: •
Serial RS232 Port	: •
Battery Backed Clock & Configuration RAM :	: •
Mouse - with Microsoft Compatible	: •
.COM & .DRV	: •
101/102 'AT' type Keyboard	: •
Security Lock for Keyboard	: •
Volume Control for Speaker	: •
Built-In LIM 4.0	: •
RAM Division Option to	: •
Conventional/Extended/LIM	: •
Novell Netware Compatible	: •
Microsoft	: Server
MS-DOS	: 4.0
Windows	: 386
GW BASIC	: •
Dimensions	
System Unit	
Width	: 415mm
Height	: 160mm
Depth	: 485mm
Keyboard	
Width	: 475mm
Height	: 35mm
Depth	: 200mm

NOTES TO ENGINEERS

Please be advised that no component level repairs are to be carried out on Main CPU PCB. After diagnosis test if the fault is confirmed replace CPU PCB.

This is obtainable from our authorised spares outlet.

The same applies to the floppy disc drives and hard disc drives.

Any attempts to repair or replace any parts or components within these units will invalidate any warranty or part warranty on the item.

Replacement items will be available from our authorised spares outlet.

PSU & Monitors are subject to component level repairs.

Any information which is not published herein may be made available upon special request to Amstrad Spares & Service Department.

SAFETY TEST

All monitors are tested to the following specifications.

1. **Flash Test:** Test at 1.5kV RMS / 3 sec between the live and neutral poles of the mains lead and all accessible metal points on the exterior of the set.
2. **Insulation Resistance Test:** Test at 1.5kV RMS / 3 sec between the live and neutral poles of the mains lead and all accessible metal points on the exterior of the set to show a resistance greater than 4Mohms.
3. **Earth Continuity Test:** The resistance of the mains lead shall not exceed 0.5ohms.

PLEASE NOTE: When any work is completed on this unit, correct safety tests must be carried out to ensure continued electrical safety.

PLEASE NOTE: All parts shown with the part number prefix  are Safety Items and must be replaced with similar items having an identical safety specification.

All those items may be purchased direct from AMSTRAD plc.

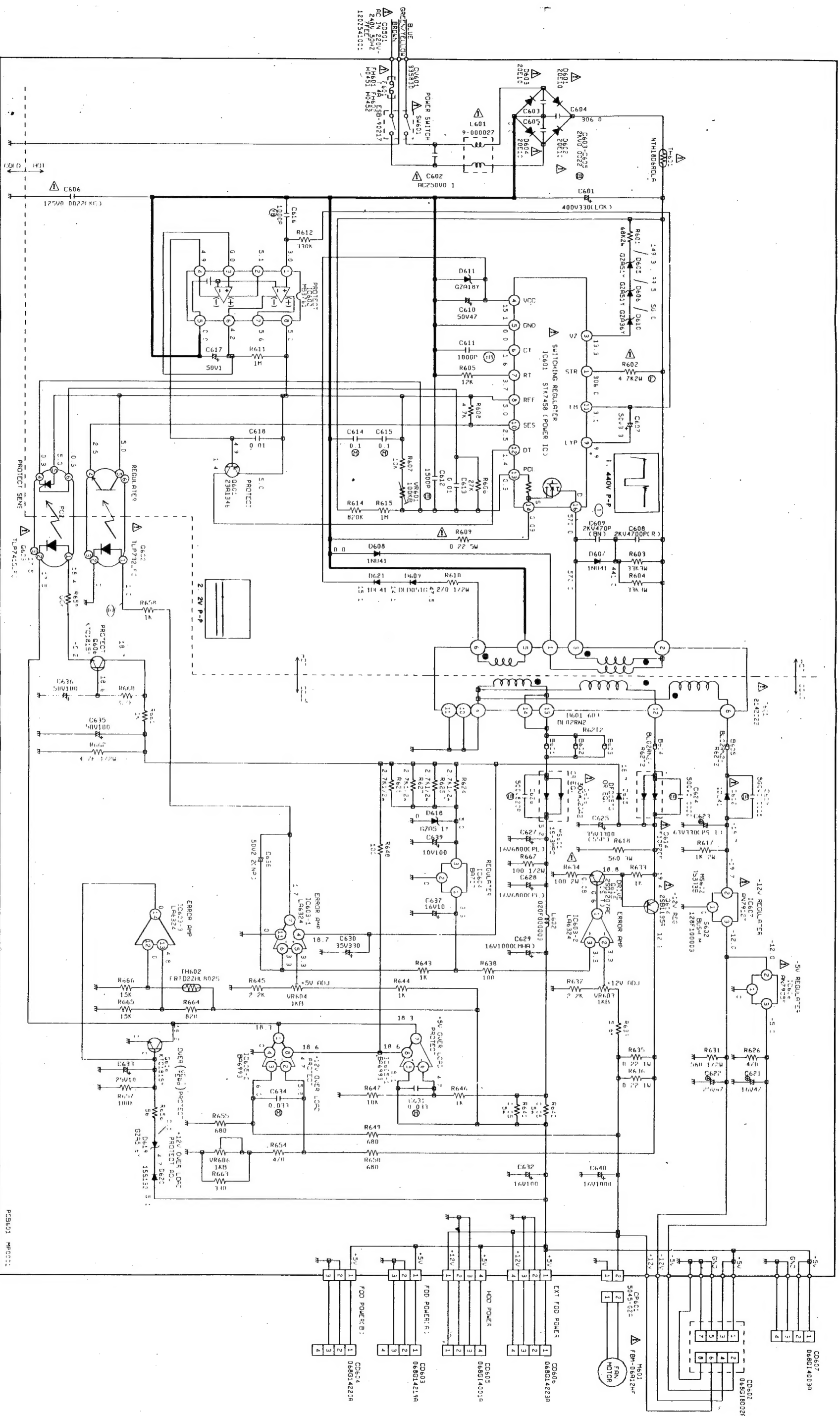
In keeping with our policy of continually improving our service and the technical quality of our products, we reserve the right to change component types, manufacturers, sources of supply or technical specification at any time.

AMSTRAD PLC

BRENTWOOD HOUSE, 169 KINGS ROAD, BRENTWOOD, ESSEX CM14 4EF.

Telephone: 0277 230222. Telex: 0277 211350 Amsele G.

POWER SUPPLY CHASSIS SCHEMATIC DIAGRAM



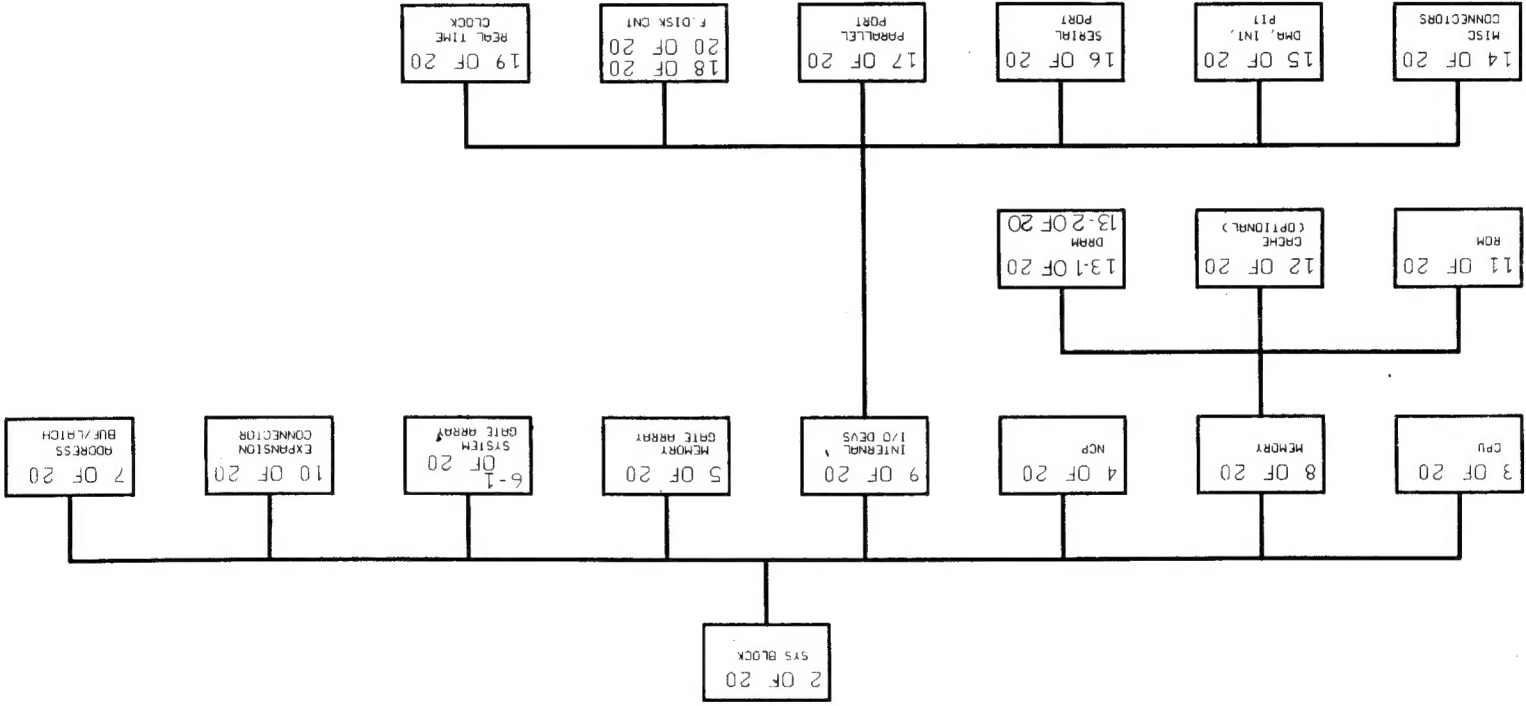
CAUTION: SINCE THESE PARTS MARKED BY Δ ARE DANGEROUS IN POINT OF USE, SECURELY DESCRIBE ON PARTS LIST ONLY.

ATTENTION: LES PIÈCES REPÉRÉES PAR UN Δ SONT DANGEREUSES EN POINT D'UTILISATION. DÉCRIRE EN DÉTAIL DANS LA NOMENCLATURE DES PIÈCES.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

PCB601 HP0001

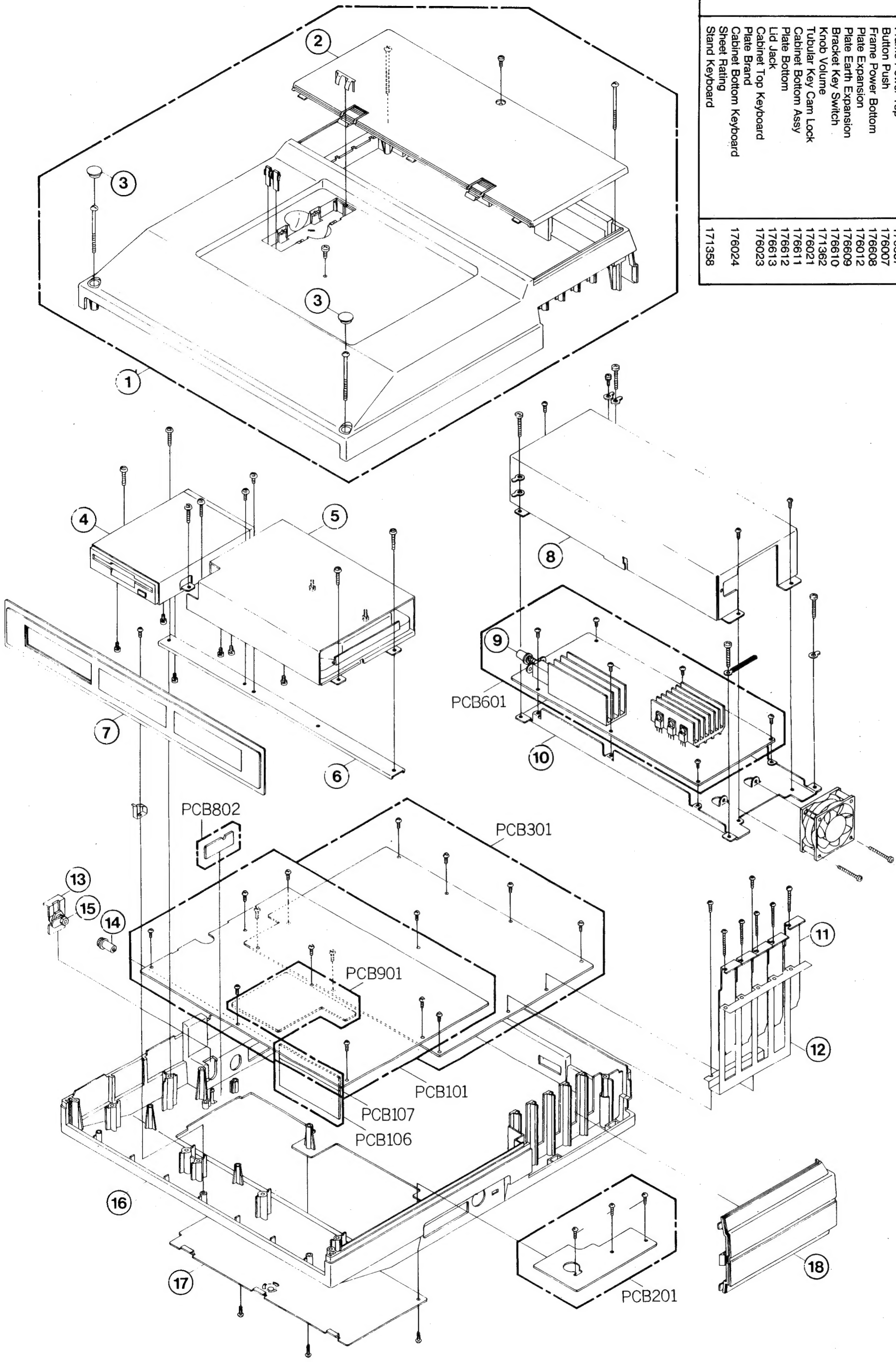
INTERCONNECTION DIAGRAM



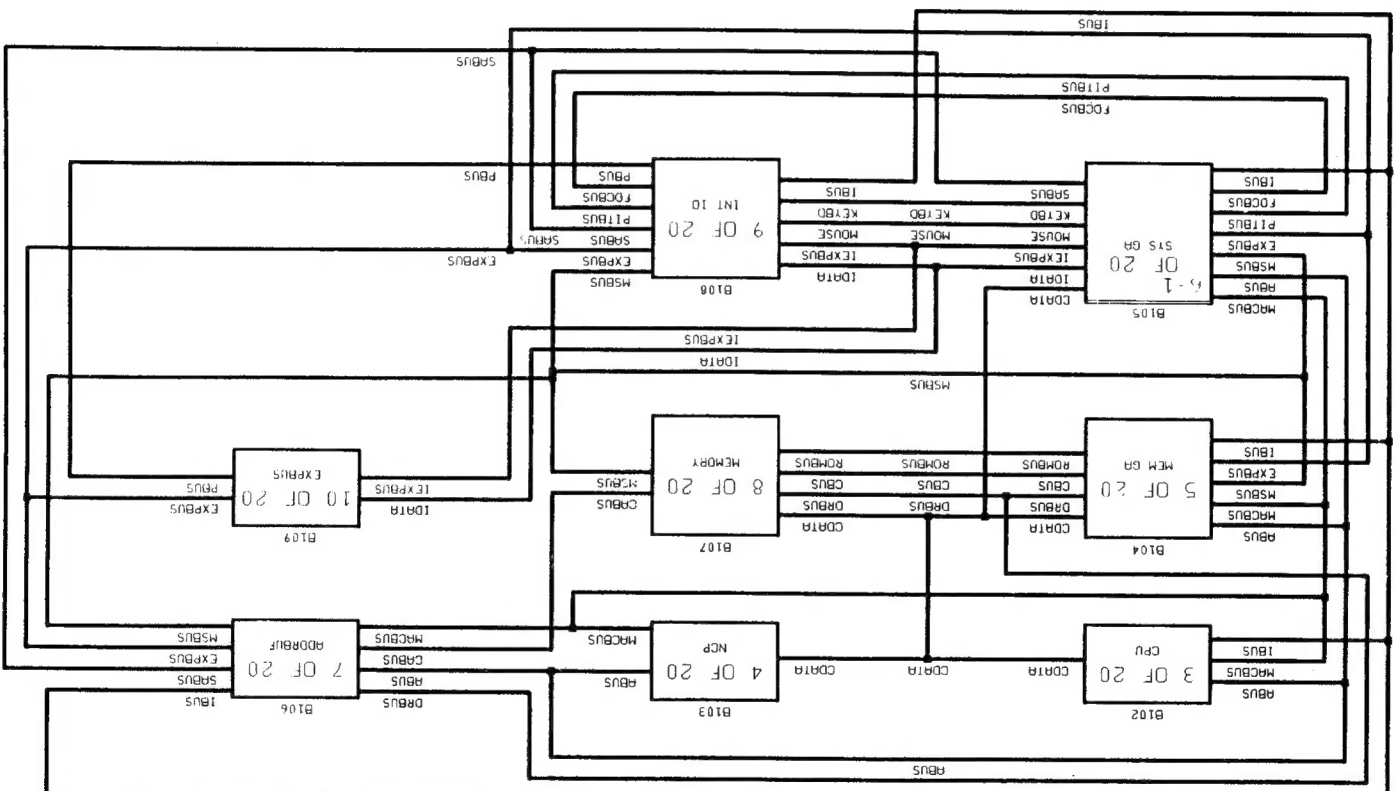
CABINET PARTS LIST

Ref.	Description	Part No.
1	Cabinet Top Assy	176601
2	Lid PCB	176602
3	Screw Cap	171363
4	Frame FDD	176603
5	Frame HDD	176604
6	Frame Fixing Metal	176605
7	Cabinet Top Assy	176606
8	Frame Power Top	176607
9	Button Push	176607
10	Frame Power Bottom	176608
11	Plate Earth Expansion	176012
12	Bracket Key Switch	176609
13	Knob Volume	176610
14	Tubular Key Cam Lock	171362
15	Cabinet Bottom Assy	176021
16	Plate Bottom	176611
17	Lid Jack	176612
18	Cabinet Top Keyboard	176613
19	Plate Brand	176023
20	Cabinet Bottom Keyboard	176024
21	Sheet Railing	
22	Stand Keyboard	171358
23		

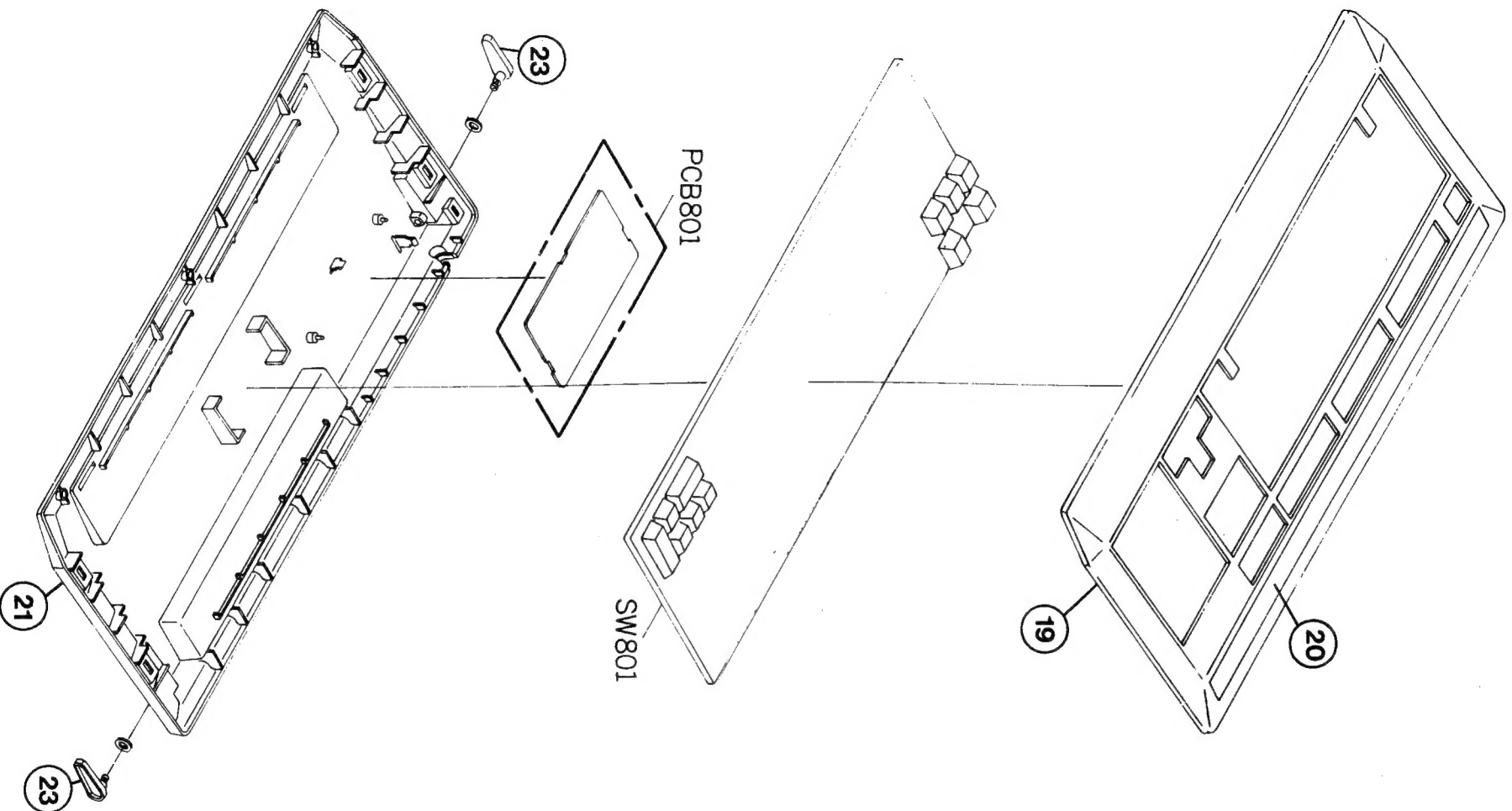
CABINET EXPLODED VIEW



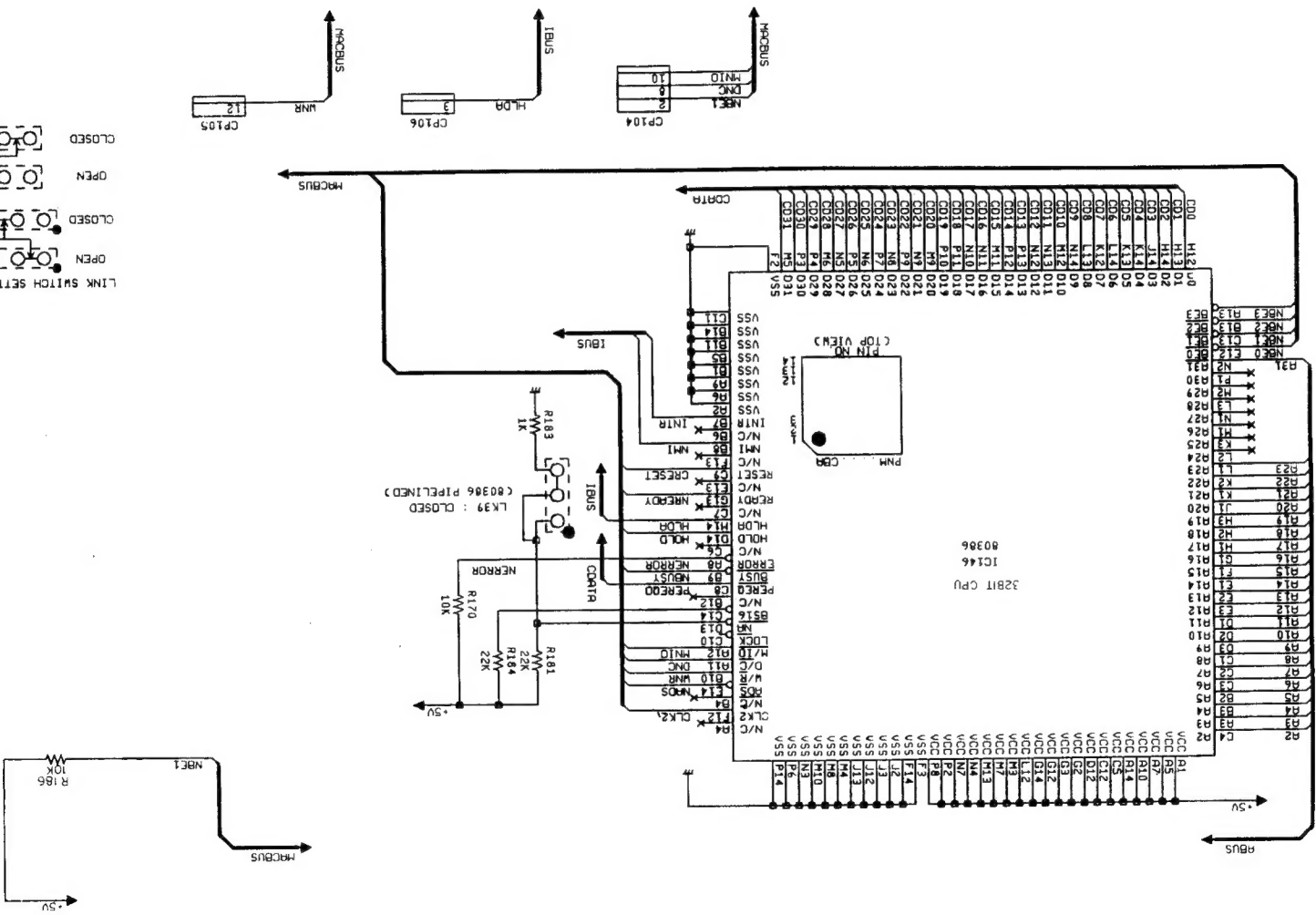
INTERCONNECTION DIAGRAM



KEYBOARD EXPLODED VIEW
(For Parts List please refer to Page 47.)



CHASSIS SCHEMATIC DIAGRAM

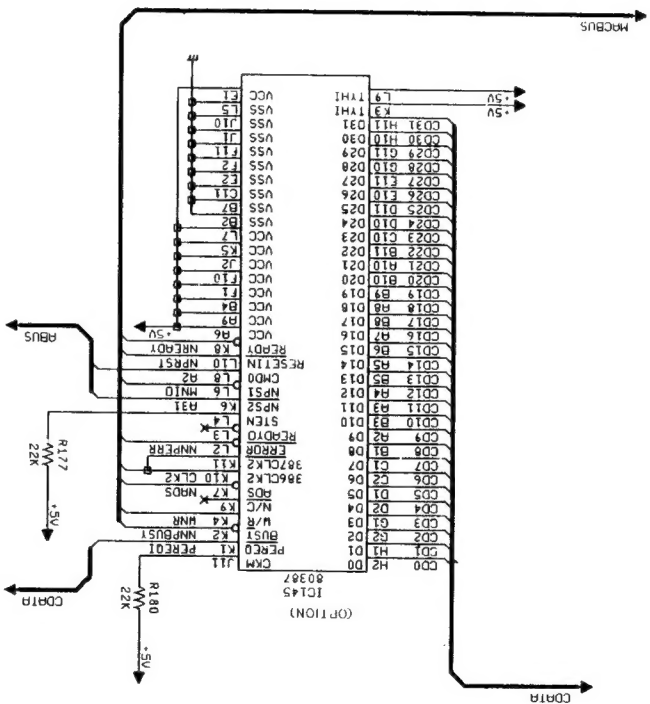


ELECTRICAL PARTS LIST

Circ. Ref.	Description	Part No.
Transistors		
Q101, 104, 106, 801-803	TR KTA1015Y	170453
Q102, 103, 105, 301, 302, 606, 616	TR KTC1815Y	170447
Q303	TR 2SC1923Y	202201
Q601	TR 2SA1346-AC Compound TR.	176660
Q602	TR Photo TLP732 (LF2)	176087
Q603	TR Photo TLP741G (LF2)	176659
Q614	TR 2SB1135R	176661
Q615	TR 2SD1207-AE	170741
Q901-904	TR ZVP0106A	176662
Diodes		
D101-104, 304, 305, 620, 801, 802, 901, 902	D 1SS132T-77	171582
D105, 106	DZ GZA6.8Y	175636
D301	LED SLP-155B	170866
D302	LED SLP-255B	176028
D303	D 1SV111A	176616
D601-604	D 20E10FA13	176039
D605, 606	DZ GZA51 Y BT	176617
D607, 608	D 1NU41 (LC6)	176618
D609, 615	D DFD05TG-BT	176035
D610	DZ GZA36 Y BT	176619
D611	DZ GZA18 Y BT	176033
G612, 621	D 1DL41 (TPA3)	176620
D614	D F10P20F	176621
D616	D 30 GWJ2C42	176622
D618	DZ GZA5.1 Y BT	176038
D619	DZ GZA5.6 Y BT	171499
Miscellaneous		
B101	Ferrite Bead	174058
B601-605	Ferrite Bead	176114
FDD201	Floppy Disc Drive OSDA-45A	176724
HDD201	Hard Disc Drive ST277R	176725
M601	Fan Motor	176732
NR101, 102	Resnet 4.7k Ω X8	176167
NR103, 104	Resnet 2.2k Ω X8	176166
NR801	Resnet 10k Ω X8	176169
SP401	Speaker	171370
TC101, 301	Trimmer Capacitor 20pF	176171
TH601	Thermistor Power	176733
TH602	Thermistor	176172
X101	XTAL 1.8432 MHz	176173
X102	XTAL 32.768kHz	176174
X103	XTAL 48.0MHz	176734
X104	XTAL 14.318MHz	176735
X105	XTAL 40.0MHz	176736
X301	XTAL 25.175MHz	176179
X302	XTAL 28.322MHz	176178
X303	XTAL 36.00MHz	176180
X304	XTAL 15.00MHz	176181
X801	XTAL 11.0MHz	173737
Description	Circ. Ref.	Part No.
Carbon Film Resistors (All 1/6W)		
100 Ω	R659	152166
330 Ω	R663	152172
470 Ω	R654	152174
680 Ω	R649, 650, 655	152176
820 Ω	R664	152178
3.3k Ω	R660	152185
4.7k Ω	R608	152188
10k Ω	R607	152194
12k Ω	R605	152195
15k Ω	R666	152196
27k Ω	R606	152199
100k Ω	R657	152209
1M Ω	R611, 615	152223

Description	Circ. Ref.	Part No.
Carbon Film Resistors (All 1/4W)		
56 Ω	R656	10024
470 Ω	R626	10048
100 Ω	R638, 648	10032
1k Ω	R633, 643, 644, 646, 658, 661	10061
5.6k Ω	R639	10079
10k Ω	R647	10085
15k Ω	R665	10089
330k Ω	R612	10121
820k Ω	R614	10130
Carbon Film Resistors (All 1/2W)		
100 Ω	R667	176377
270 Ω	R610	176748
2.7k Ω	R624, 625, 627, 628	176749
4.7k Ω	R662	176750
Metal Oxide Resistors		
0.22 Ω 1W	R635, 636	176745
100 Ω 2W	R634	176744
560 Ω 3W	R618	176743
1k Ω 2W	R617	176742
33k Ω 3W	R603	176740
68k Ω 2W	R601, 604	176738
Cement Resistors		
0.05 Ω 5W	R640, 641	176746
0.22 Ω 5W	R609	176741
Fuse Resistors		
4.7k Ω	R602	176739
Ceramic Capacitors		
470pF 2kV	C609	176751
820pF 500V	C626	176752
2200pF	C606	176304
4700pF 2kV	C608	176753
0.001 μ F	C611, 616	24027
0.0015 μ F	C612	1400223
0.0022 μ F 500V	C624	176754
0.0022 μ F 2kV	C603-605	171646
0.01 μ F	C613, 618	176755
Electrolytic Capacitors		
1 μ F/50V	C617	20062
2.2 μ F/50V	C638	175114
3.3 μ F/50V	C607	176346
10 μ F/16V	C637	20148
10 μ F/25V	C633	20037
47 μ F/16V	C621	20027
47 μ F/25V	C622	151640
47 μ F/50V	C610	176348
100 μ F/10V	C639	20028
100 μ F/16V	C632	20028
100 μ F/50V	C635, 636	176320
330 μ F/35V	C630	176321
330 μ F/63V	C623	176756
330 μ F/400V	C601	176757
1000 μ F/16V	C629, 640	1422158
3300 μ F/35V	C625	171655
6800 μ F/16V	C627, 628	176758
Polyester Capacitors		
0.03 μ F	C631, 634	176311
0.1 μ F	C614, 615	175899
Metal Plastic Capacitors		
0.1 μ F 250V AC	C602	171658

CHASSIS SCHEMATIC DIAGRAM

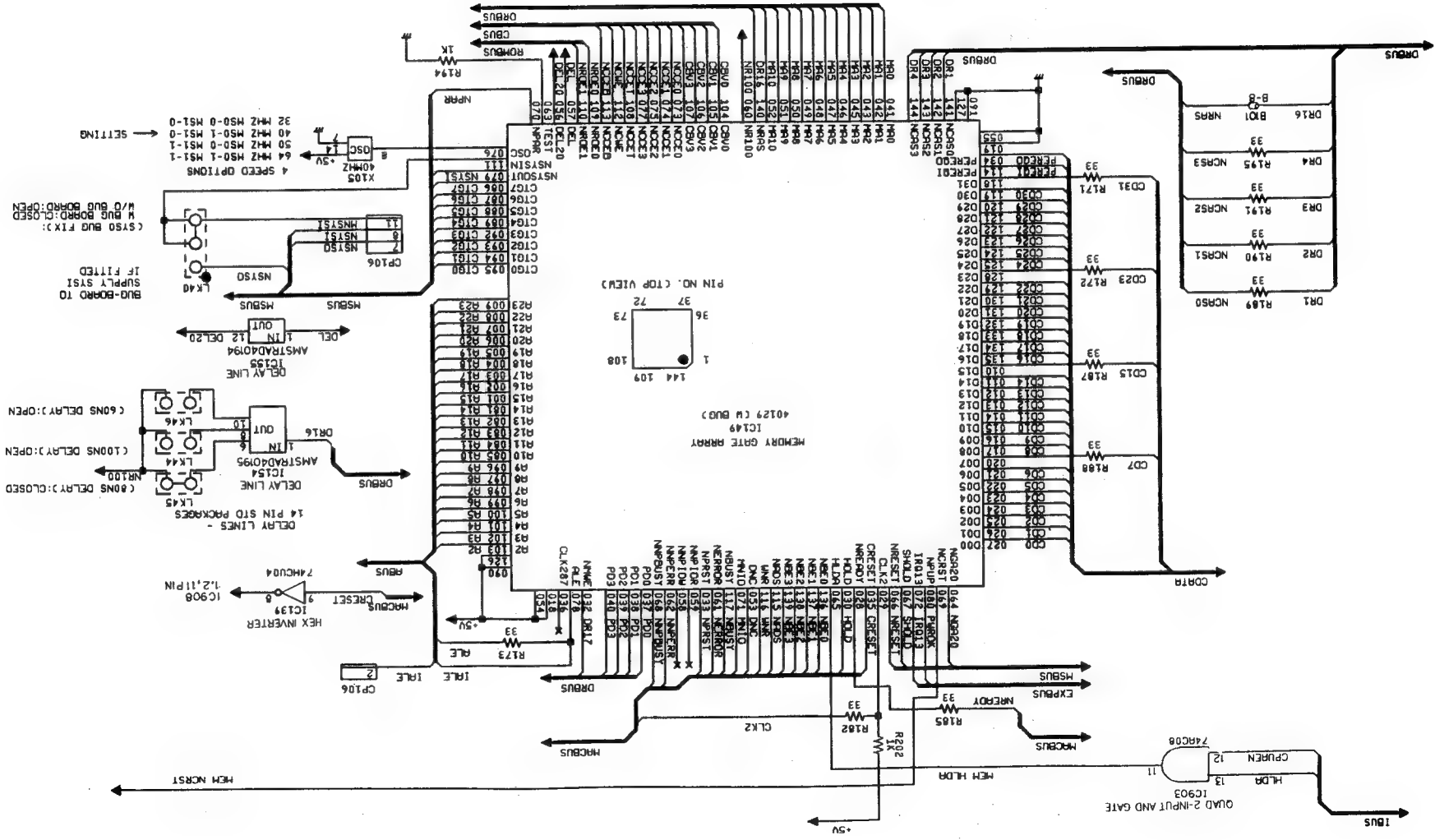


NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

ELECTRICAL PARTS LIST

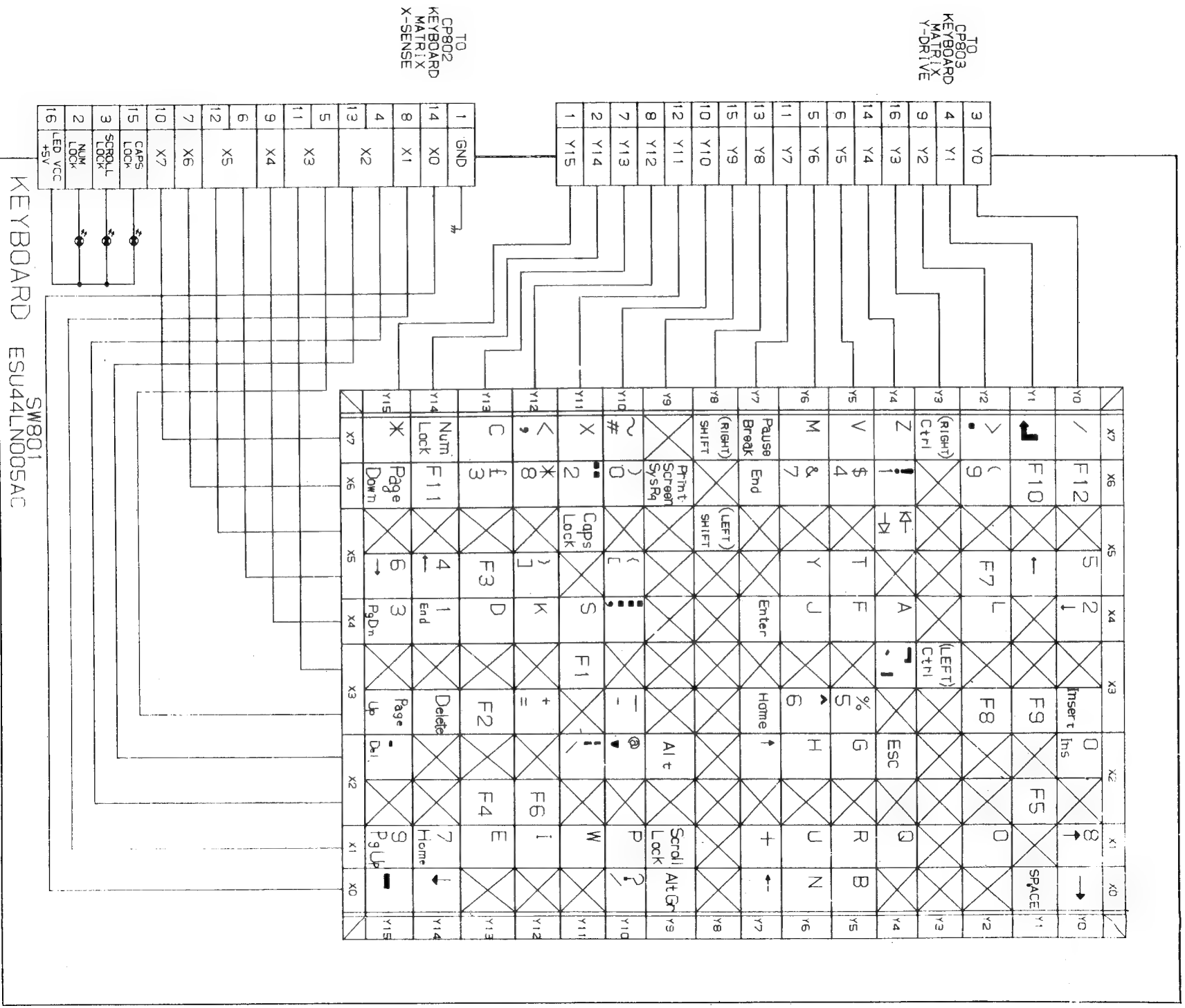
Circ. Ref.	Description	Part No.	Circ. Ref.	Description	Part No.
PCBs			IC's		
PCB101	PCB MC0076 Main PCB	176674	IC001-009	IC KM41C1000-10	176623
PCB106	PCB MC0086 Memory PCB	176675	IC101	IC AMS40187	40187
PCB107	PCB MC0087 Memory PCB	176676	IC102	IC DN74LS175	176085
PCB201	PCB MS0142 F.D. Expansion PCB	176677	IC103, 108, 113	IC DN74LS138	176624
PCB301	PCB MC0075 Expansion PCB	176678	IC104, 140	IC DN74LS125A	176625
PCB302	PCB MS0146 LED PCB	176679	IC105	IC DN74LS08	176626
PCB303	PCB MS0147 LED PCB	176680	IC106, 107	IC SN7438	176627
PCB601	PCB MP0001 Power Supply PCB	176681	IC109, 110, 117, 142, 333	IC DN74LS14	171389
PCB801	PCB MK0006 KBD PCB	176682	IC112	IC SED9420CAC	171034
PCB802	PCB MS0143 Lock Key PCB	176683	IC114	IC AMS40188	40188
PCB901	PCB MS0140 Debug PCB	176684	IC115	IC MC146818P	176063
Jacks			IC116, 130, 131, 133, 134, 137, 309	IC DN74LS244	171383
JD102	Socket DIN	176669	IC118, 129, 143, 144	IC DN74LS374	176628
JD202	Jack DIN	176160	IC119	IC HD74AC08P	174031
Switches			IC120	IC Z765APS	176048
SW102	Switch Puch ESE-153A	176100	IC121, 123-127, 308, 310	IC DN74LS245	171393
SW201	Switch Slide 22DP	176101	IC122	IC DN74LS148	176629
SW301	Switch Dip	176670	IC128	IC DN74LS240	176630
SW601	Switch Puch Power	176102	IC132	IC AMS40130	40130
SW801	Switch Keyboard	176671	IC135	IC HD7406P	176042
Variable Resistors			IC136	IC DN74LS174	176631
VR401	VROT 20k Volume Control	176104	IC138, 147, 148	IC DN74F373	176632
VR601	VRSF 100k Ω	176672	IC139, 327, 905	IC MN74HC04	400089/A
VR603, 604, 606	VRSF 1k Ω	176673	IC141	IC DN74LS05	176633
Coils			IC146	IC AMS386	176600
L301	Coil 4.7mH	176663	IC149	IC AMS40129	40129
L302	Coil 1.2uH	176664	IC151-153	IC UPD421000LA-10*9PCS	176634
L303	Coil 10uH	176665	IC154	IC AMS40195 Delay Line	40195
L601	Coil Line Filter	176666	IC155	IC AMS40194 Delay Line	40194
L602	Coil 020F000003	176093	IC156	IC AMS40192	40192
T601	Transformer Switching 8142022	176667	IC157	TMS72C256-20 ROS	
			IC158	IC AMS40191 ROS	40191
			IC159	IC AMS40190 ROS	40190
			IC160-170	IC AMS40189 ROS	40189
			IC301, 302	IC HM6789P-30	176639
			IC303	IC MC1489AP	171379
			IC304	IC MC1488P	171378
			IC305	IC LA6339D	176640
			IC307	IC IMSG171P-35	176074
			IC311, 312, 314, 315, 320, 321, 323, 324	IC PVGA1 Video Gate Array IC KM41464-12	176071 176641
			IC316	IC AMS40193	40193
			IC317	IC A447-0050-10 Delay Line	176651
			IC318	IC DN74LS123	176642
			IC319	IC LF357	176643
			IC322	IC DN74LS32	176644
			IC325	IC AMS40183	40183
			IC326	IC AMS40201-1	40201
			IC328	IC AM26LS31PC	176645
			IC329, 332	IC HD7406P	176042
			IC330	IC CXK58256PM-10	176646
			IC331	IC AM26LS32PC	176647
			IC401	IC LA4140	170111
			IC601	IC STK7458	176648
			IC602	IC MB3761M	176649
			IC603	IC LA6324	170112
			IC604	IC BA707	171481
			IC605	IC BA6993	171480
			IC606	IC AN7905F	176652
			IC607	IC AN7912T	176653
			IC801	IC AMS40211	40211
			IC802	IC MN74HC14	176654
			IC804	IC DN74LS145	176655
			IC901	IC AMS40223-3	40223
			IC902	IC AMS40222-3	40222
			IC903	IC HD74AC08P	174031
			IC904	IC MC74F10	176656
			IC906	IC AMS40228-2	40228
			IC907	IC AMS40229	40229
			IC908	IC DN74LS74A	176658

CHASSIS SCHEMATIC DIAGRAM



NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

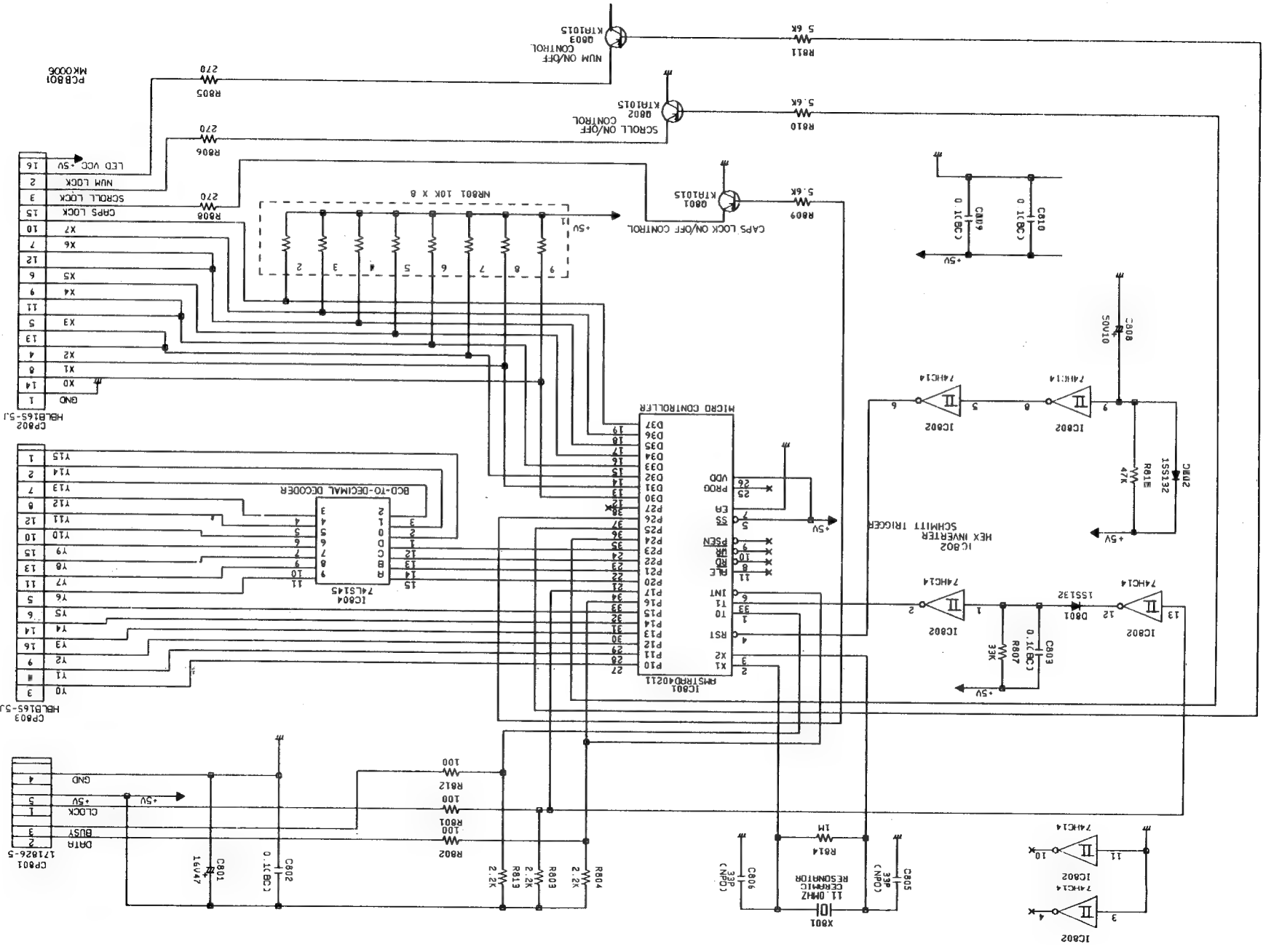
KEYBOARD CHASSIS SCHEMATIC DIAGRAM



The schematic diagram illustrates a 16-channel bus arbiter circuit. It is composed of the following components and connections:

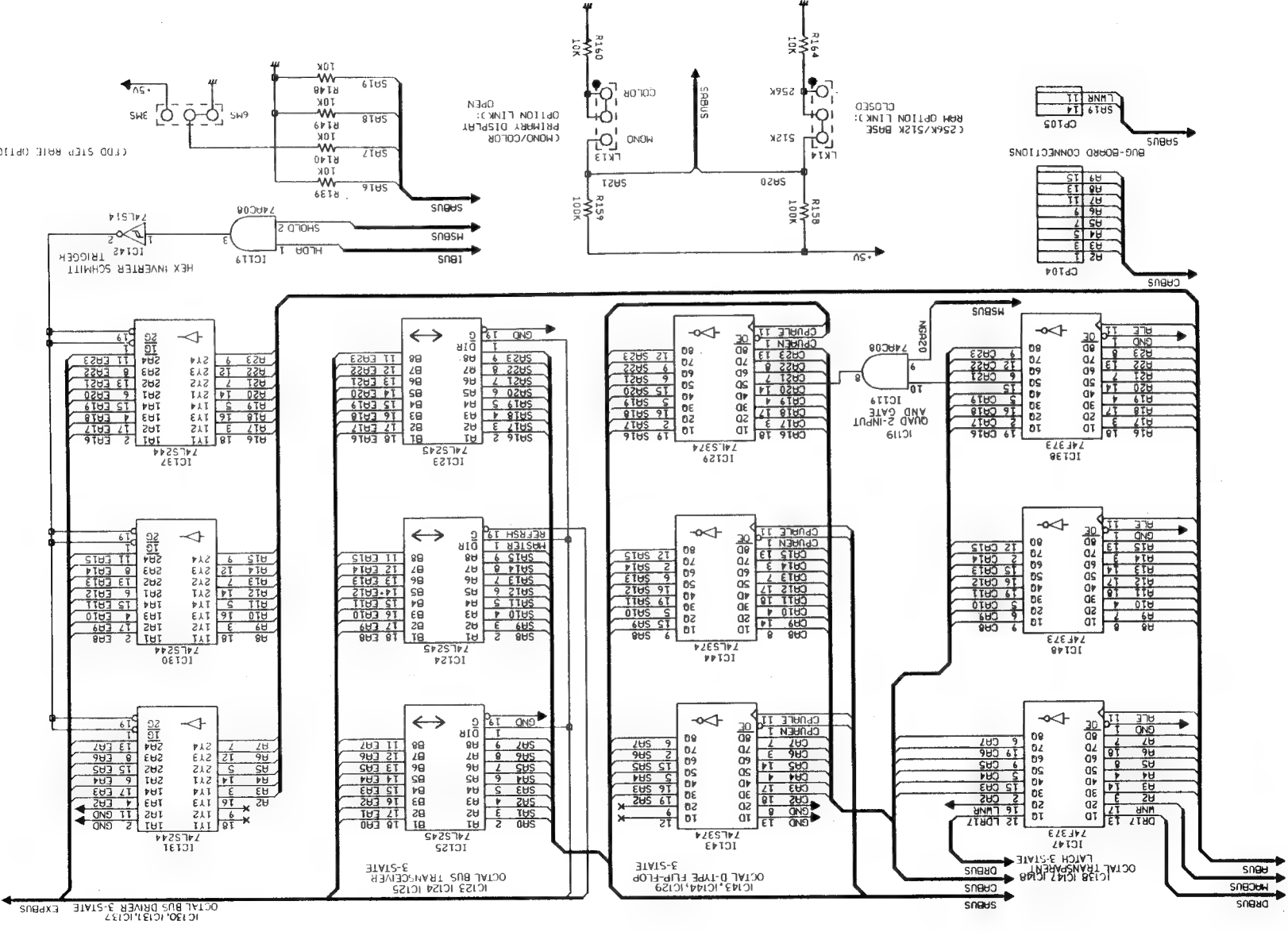
- 3-to-8 Line Decoder (IC103, IC108, IC113):** This block at the bottom takes a 3-bit input (A, B, C) and produces 8 outputs (Y0-Y7). Each output is connected to a corresponding input of the 8-to-3 line priority encoder.
- 8-to-3 Line Priority Encoder (IC122):** This central block takes 8 inputs (Y0-Y7) and produces a 3-bit output (A, B, C). The outputs are connected to the inputs of the 4-to-2 line decoder.
- 4-to-2 Line Decoder (IC105):** This block at the top takes a 4-bit input (A, B, C, D) and produces 2 outputs (Y0, Y1). The outputs are connected to the bus lines.
- Power and Timing:** The circuit is powered by a +5V supply. Pull-up resistors (R109, R110, R111, R112) are used to ensure proper signal levels on the bus lines. A quad 2-input AND gate (IC105) is also present, likely for signal conditioning or timing purposes.

KEYBOARD CHASSIS SCHEMATIC DIAGRAM



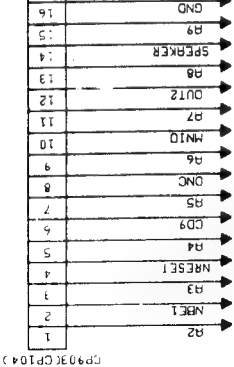
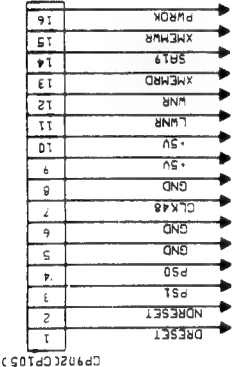
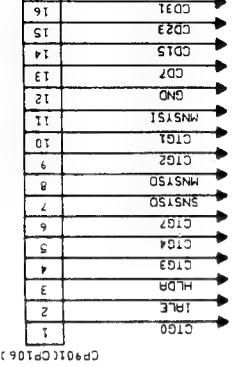
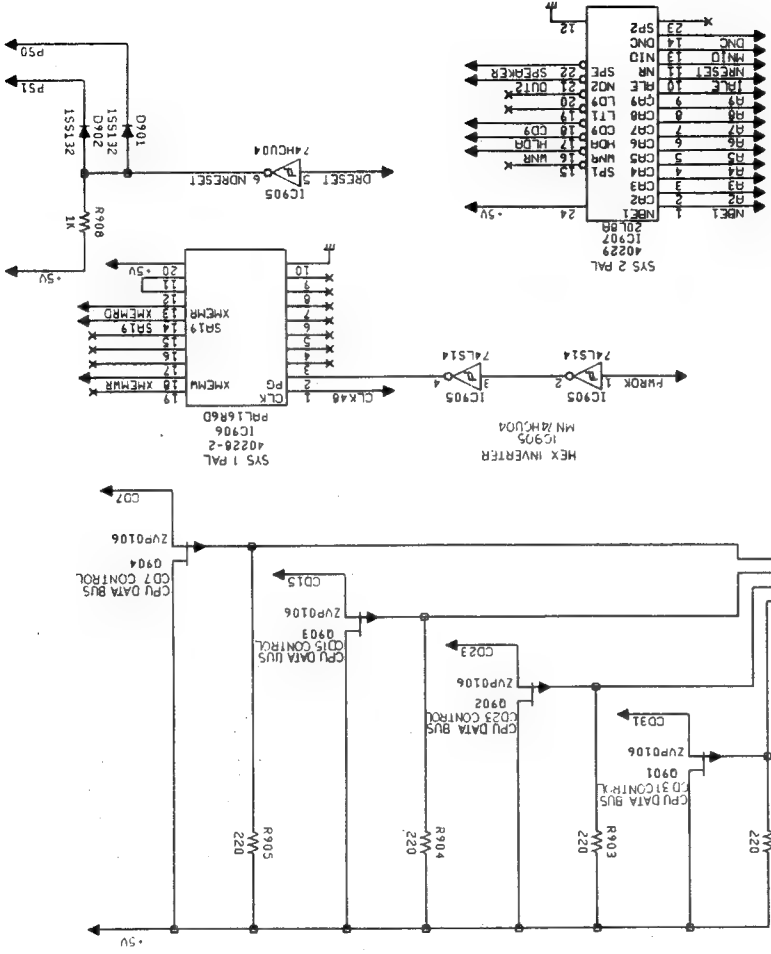
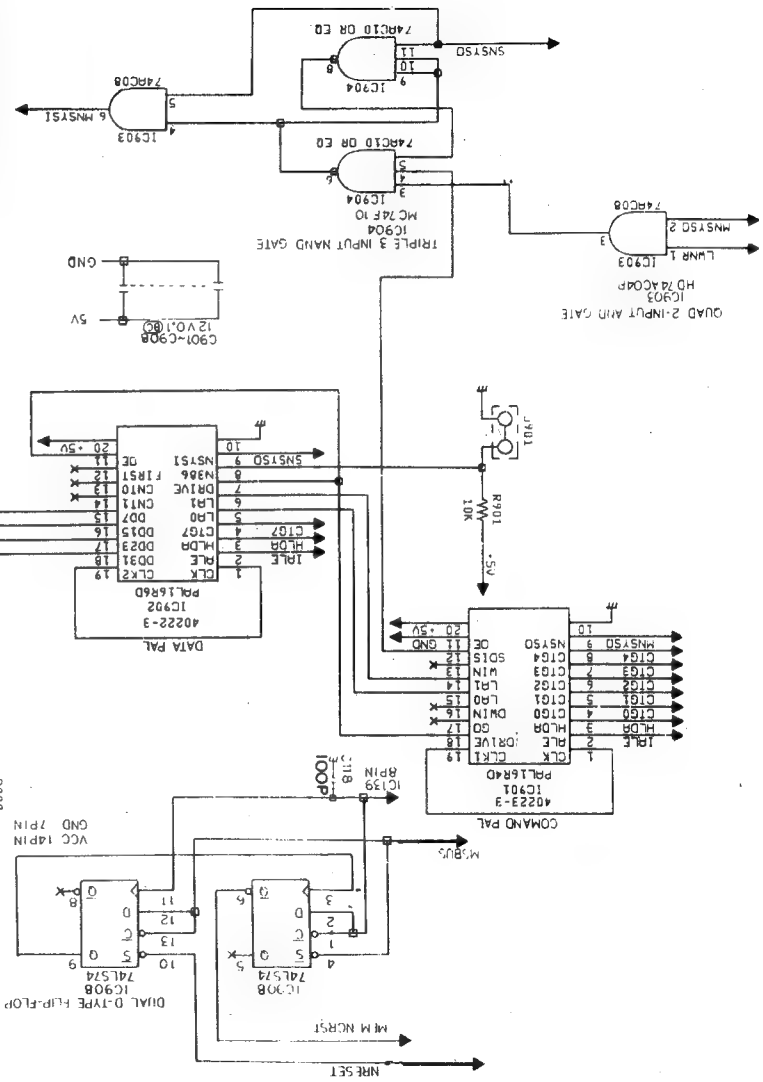
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CHASSIS SCHEMATIC DIAGRAM



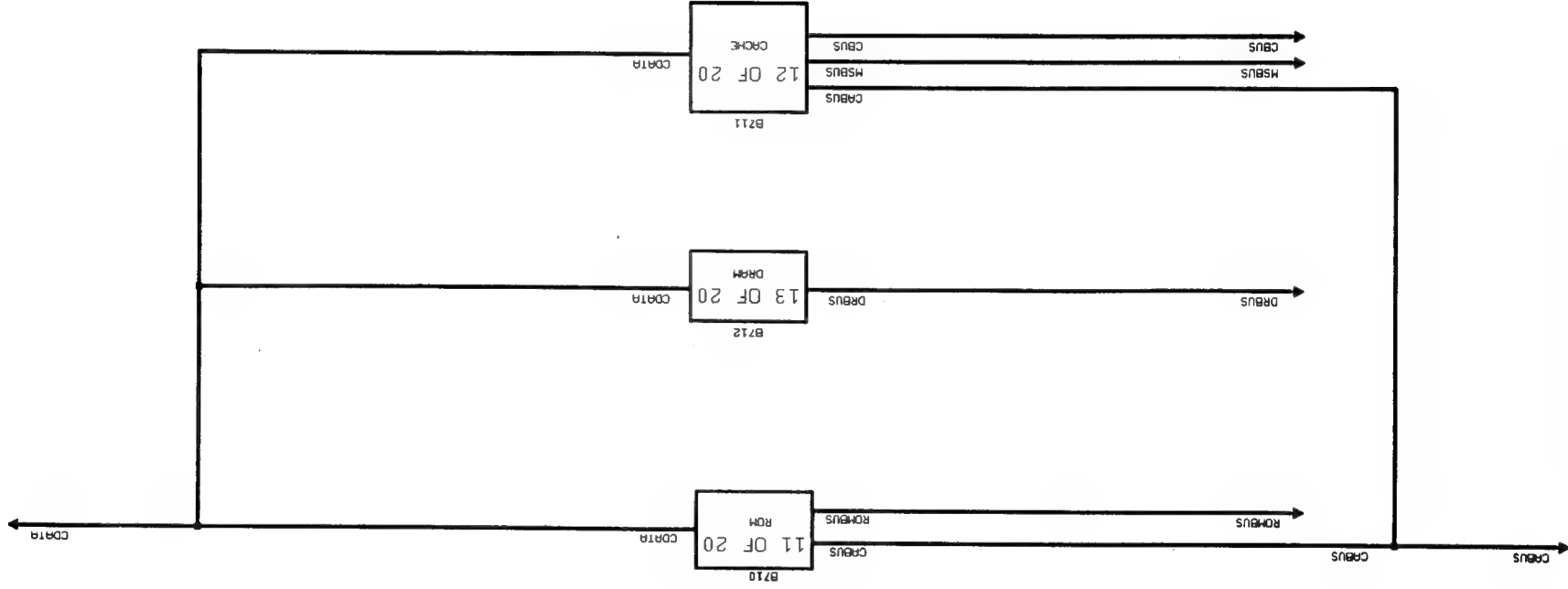
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

CHASSIS SCHEMATIC DIAGRAM 1

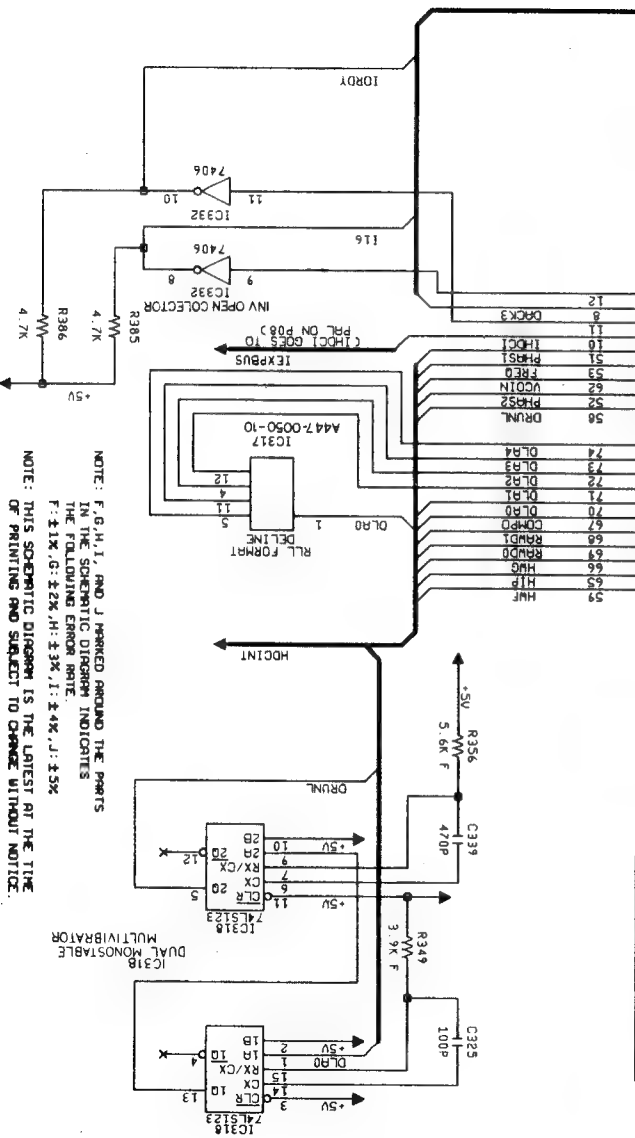
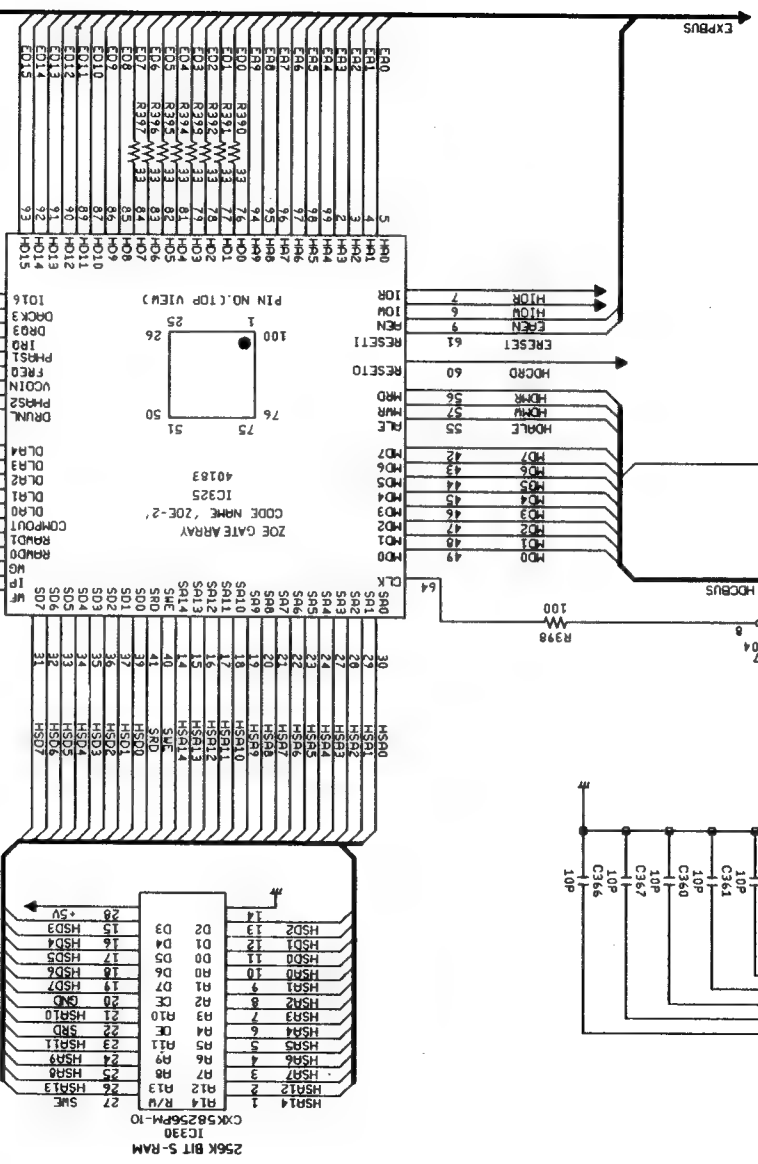
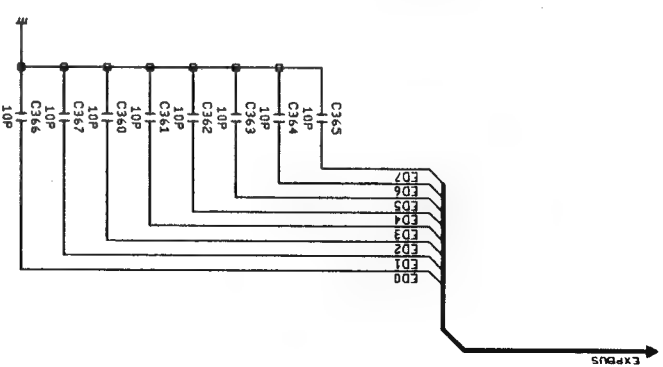
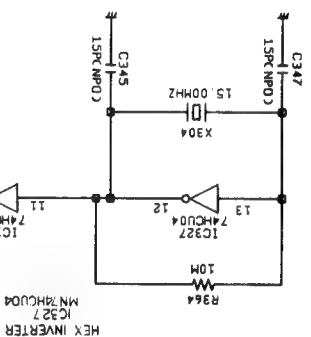
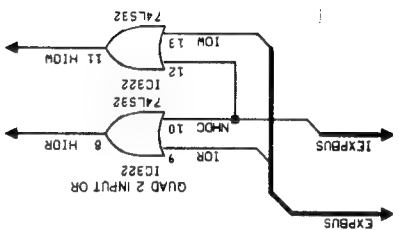


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INTERCONNECTION DIAGRAM



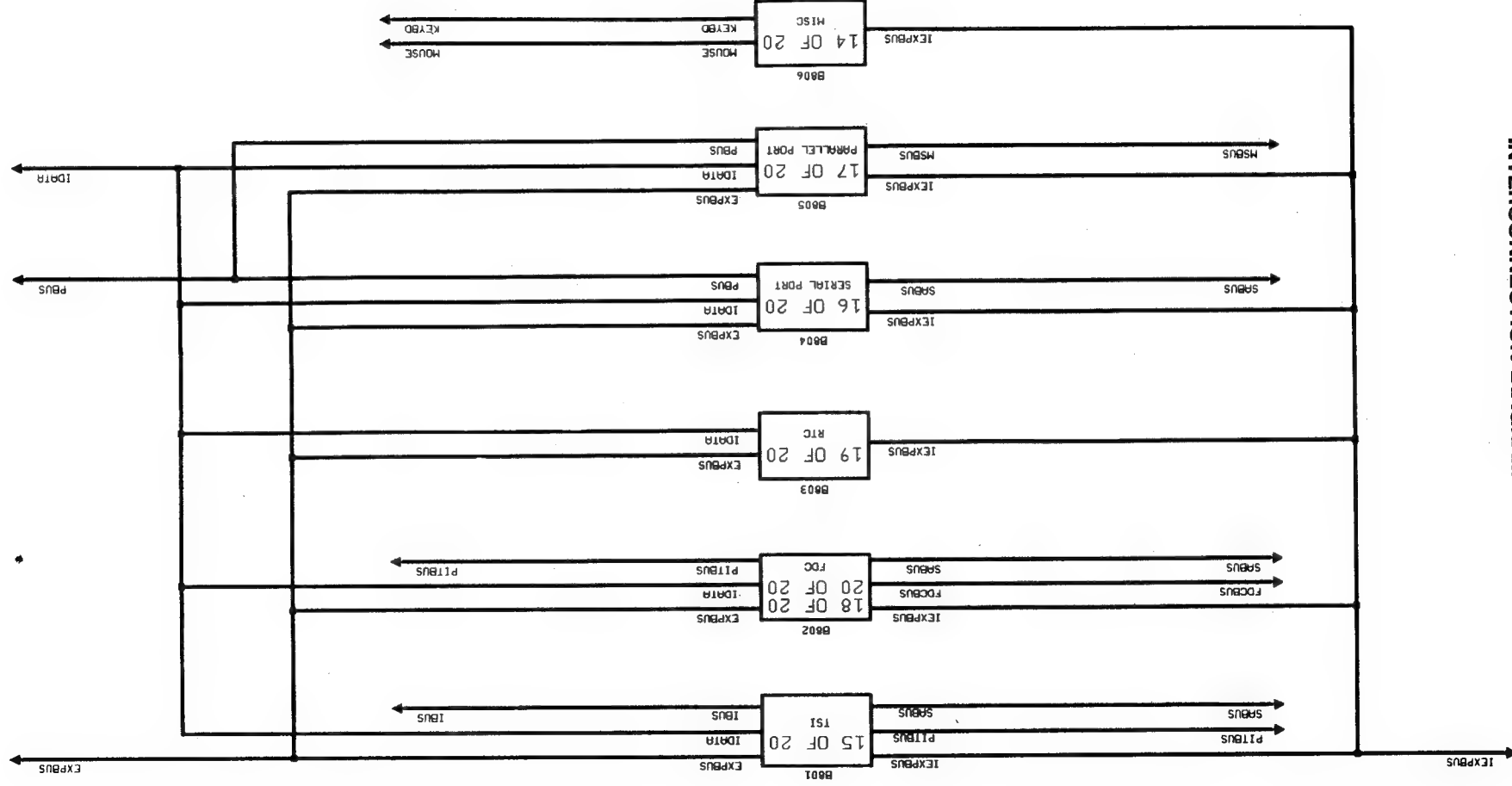
CHASSIS SCHEMATIC DIAGRAM



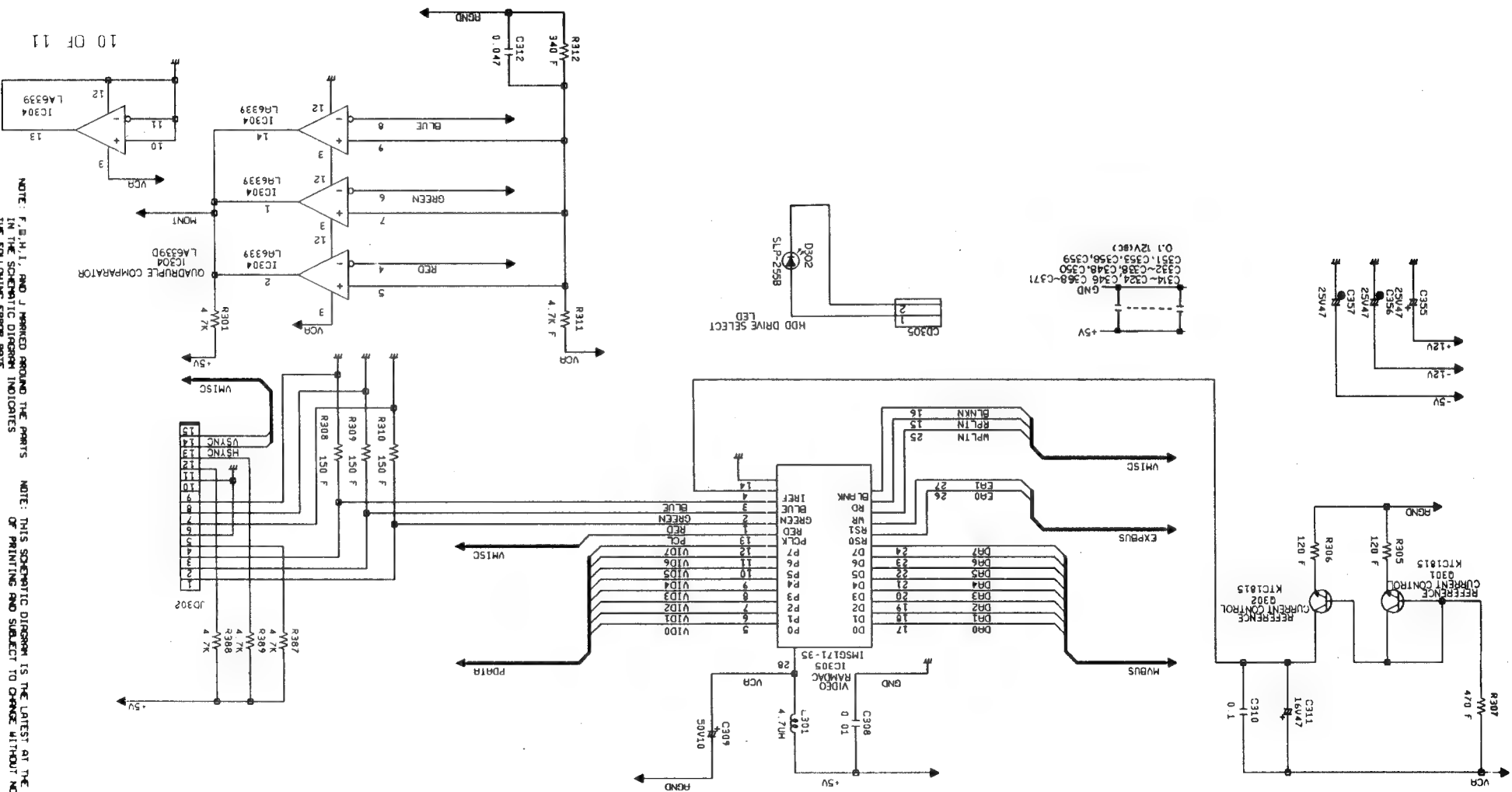
NOTE: F, G, H, I, and J PERKED AROUND THE PARTS IN THE SCHEMATIC DIAGRAM INDICATES THE FOLLOWING ERROR RATE:
F: 11%, G: 42%, H: 13%, I: 4%, J: 5%

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE

INTERCONNECTION DIAGRAM



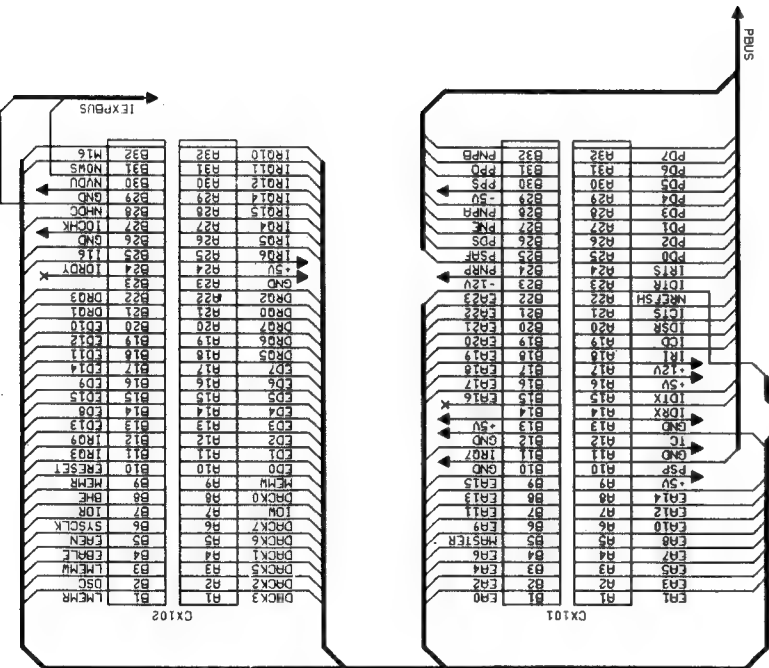
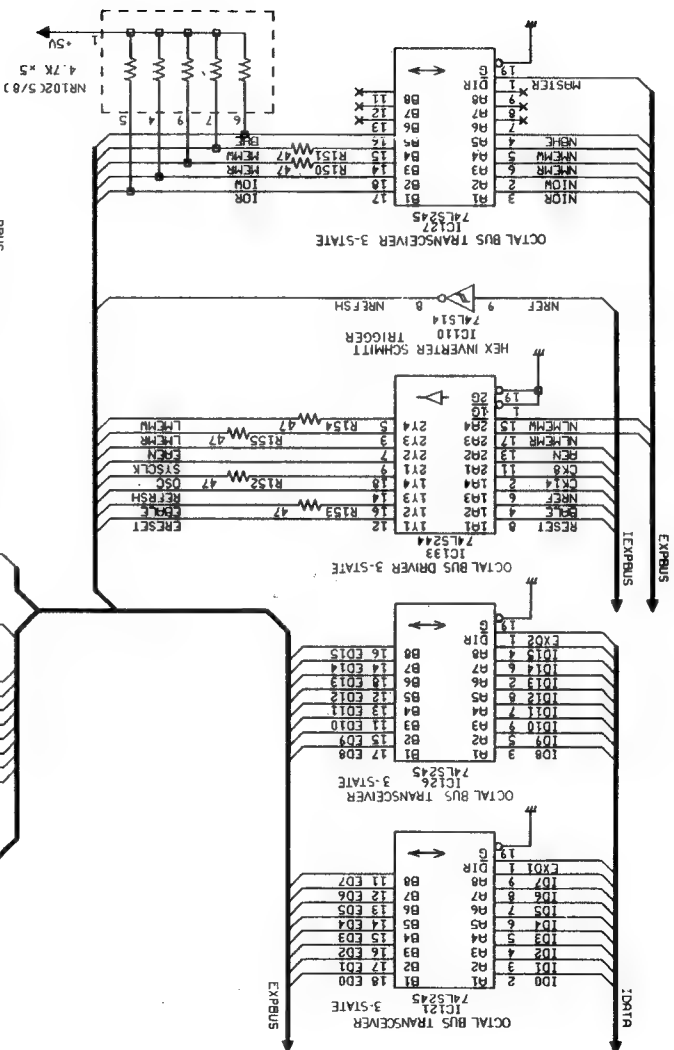
CHASSIS SCHEMATIC DIAGRAM



NOTE: F, B, H, I, AND J WORKED AROUND THE PARTS IN THE SCHEMATIC DIAGRAM INDICATES THE FOLLOWING ERROR RATE
F: $\pm 1\%$, G: $\pm 2\%$, H: $\pm 3\%$, I: $\pm 4\%$, J: $\pm 5\%$

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE

CHASSIS SCHEMATIC DIAGRAM

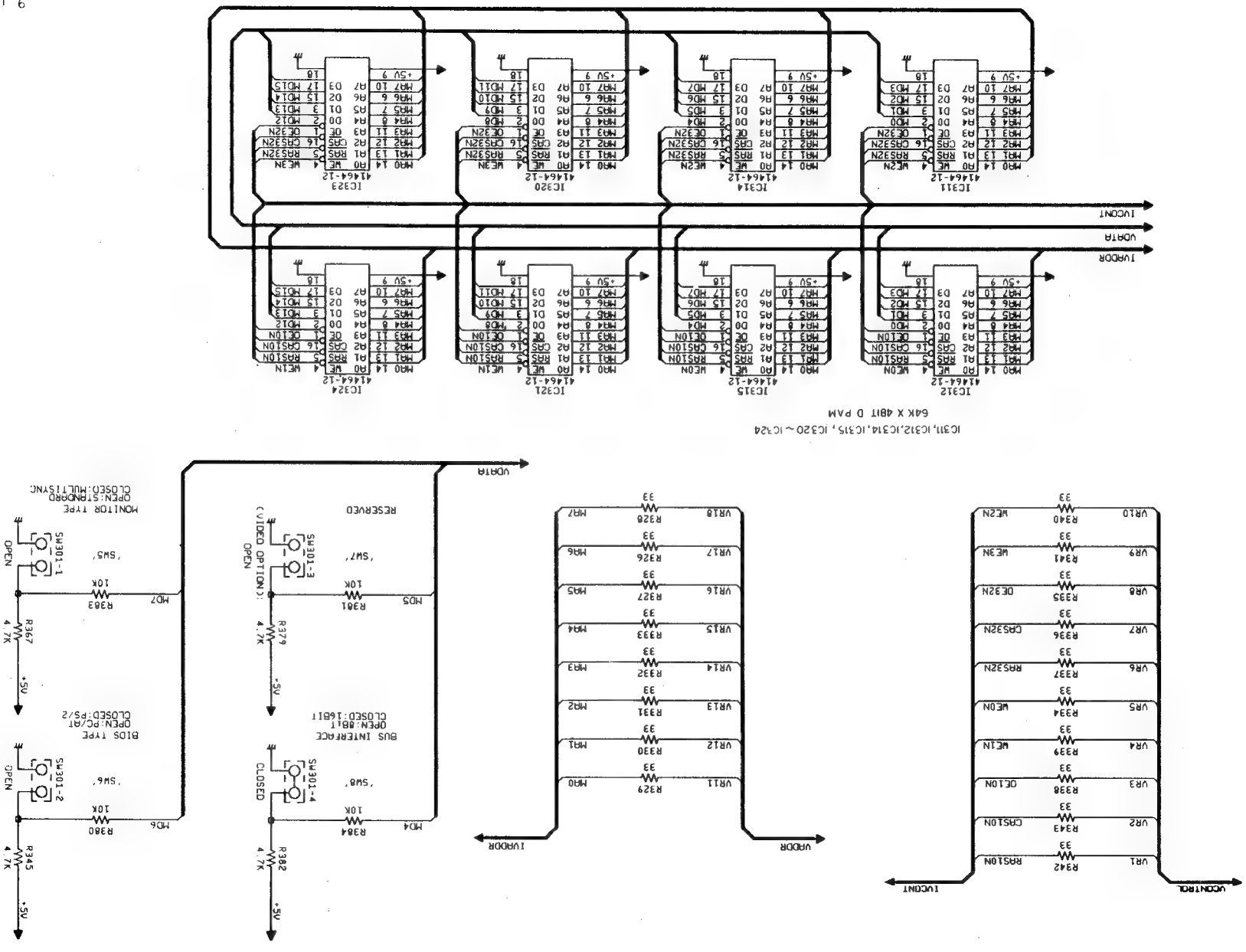


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NOTE - THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

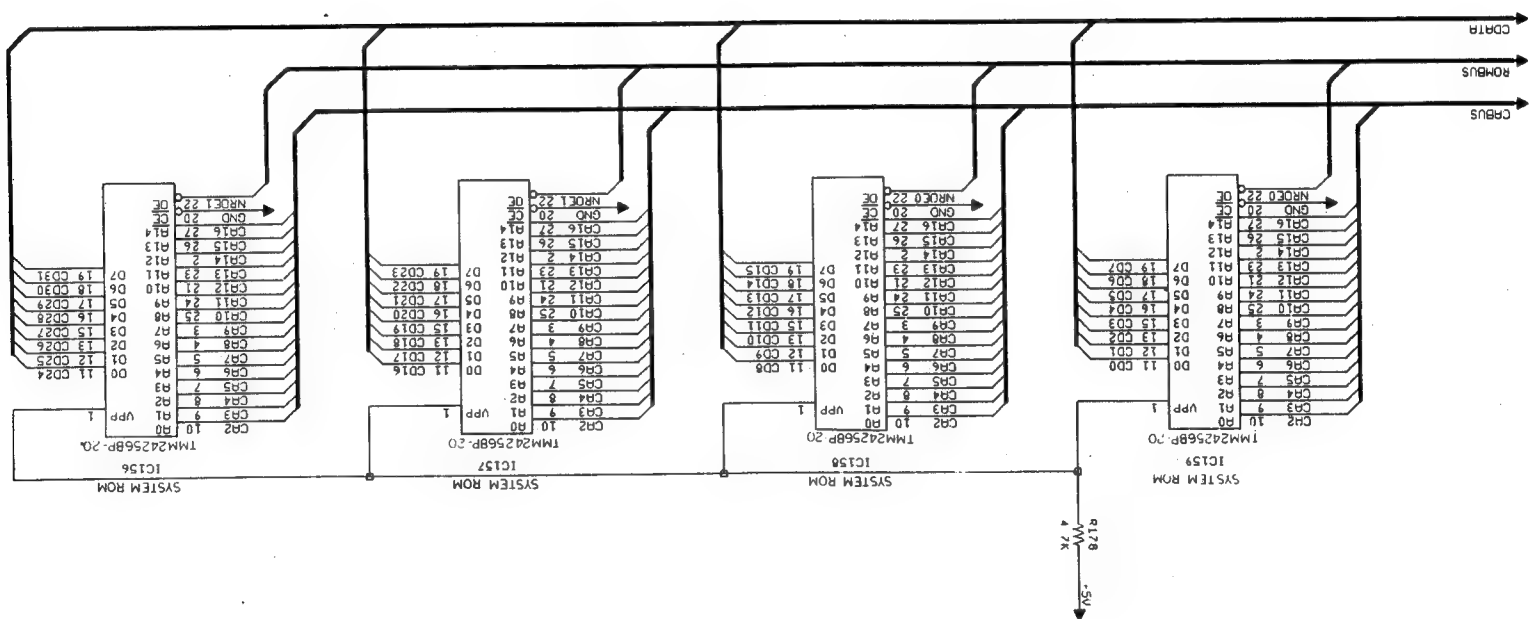
2-3226

CHASSIS SCHEMATIC DIAGRAM

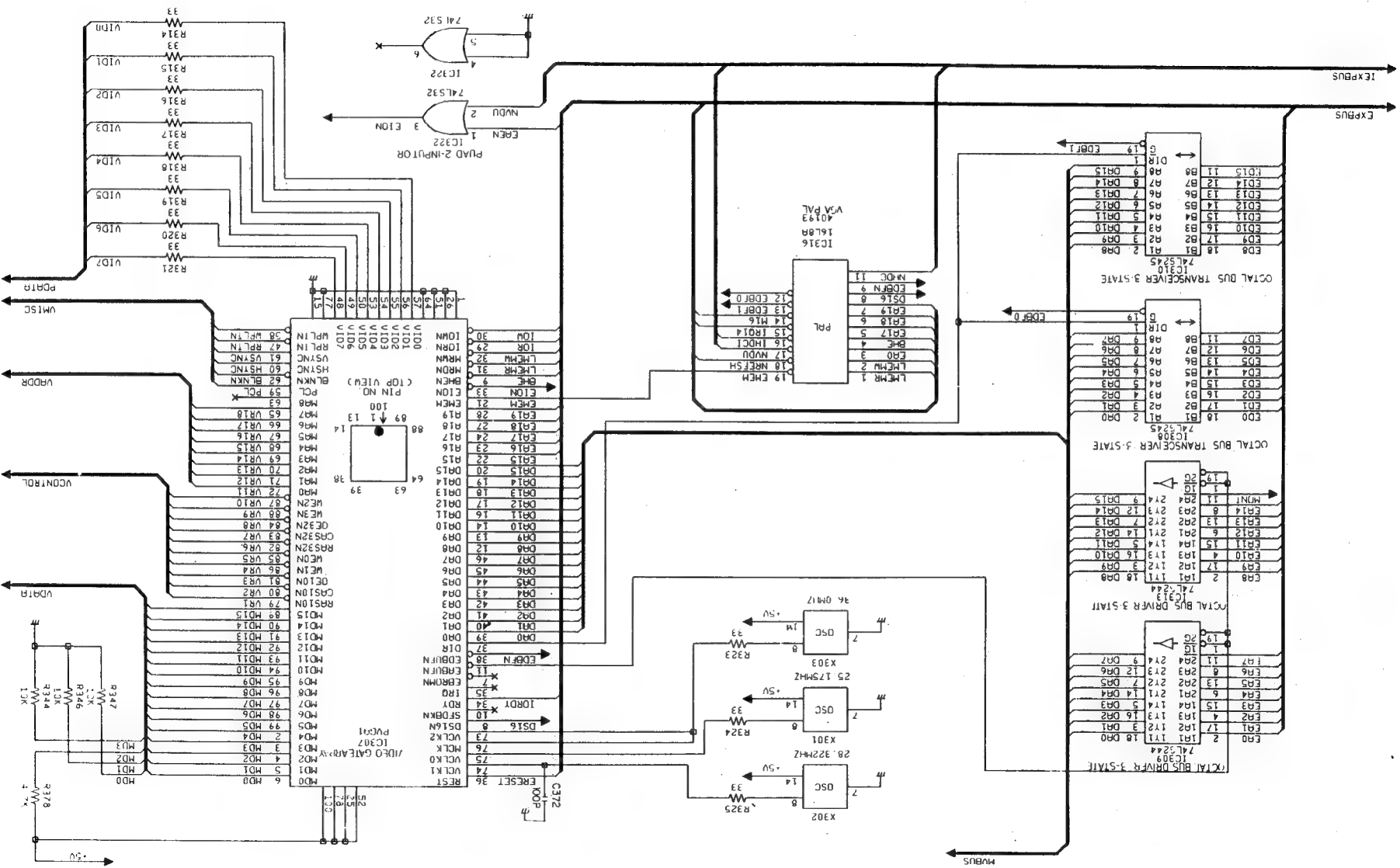


NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

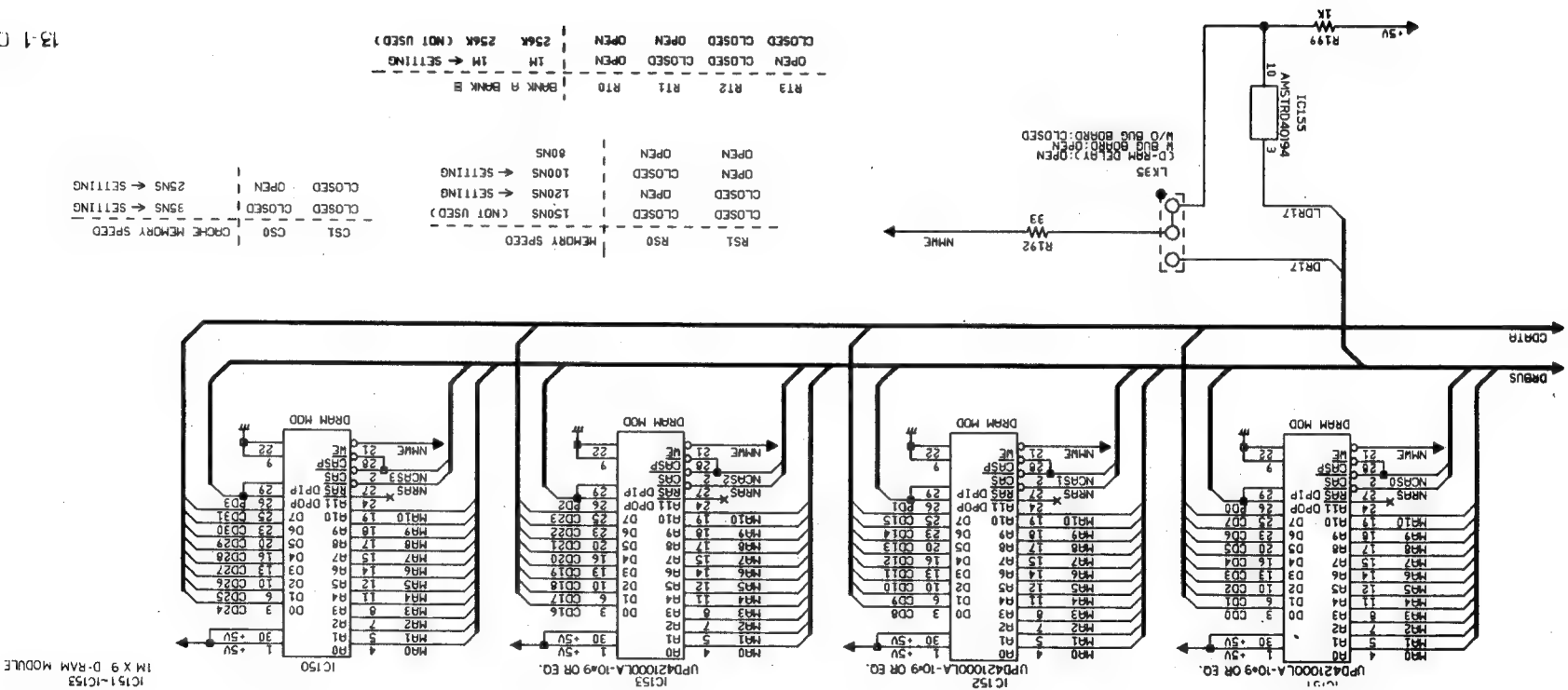
CHASSIS SCHEMATIC DIAGRAM



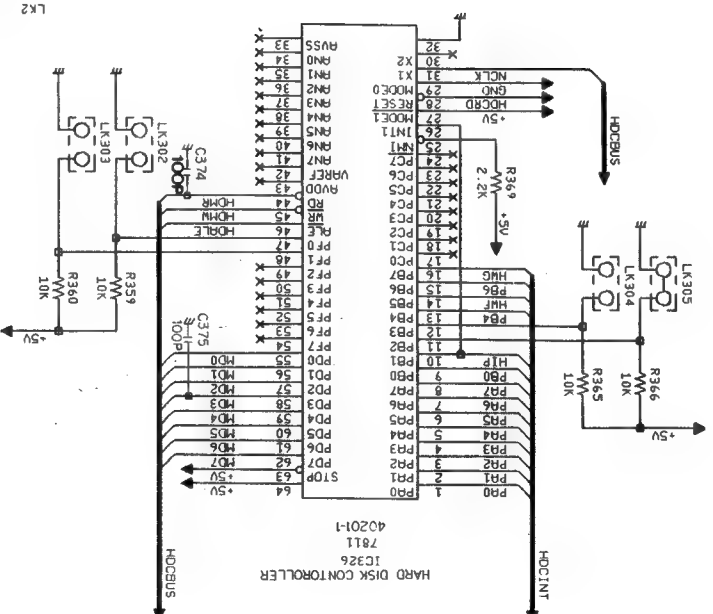
CHASSIS SCHEMATIC DIAGRAM



CHASSIS SCHEMATIC DIAGRAM



CHASSIS SCHEMATIC DIAGRAM



LK2	OPEN	OPEN	CLOSED	OPEN	OPEN	TM364C(40M)	(NOT USED)
LK3	OPEN	OPEN	OPEN	CLOSED	OPEN	S12778C(65M)	→ SETTING
LK4							
LK5							

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

The schematic diagram illustrates the PCB layout for the MC0072, featuring eight UPD42100LR-10 image sensors connected to a central processor (PB103,4,5). The diagram shows the following components and connections:

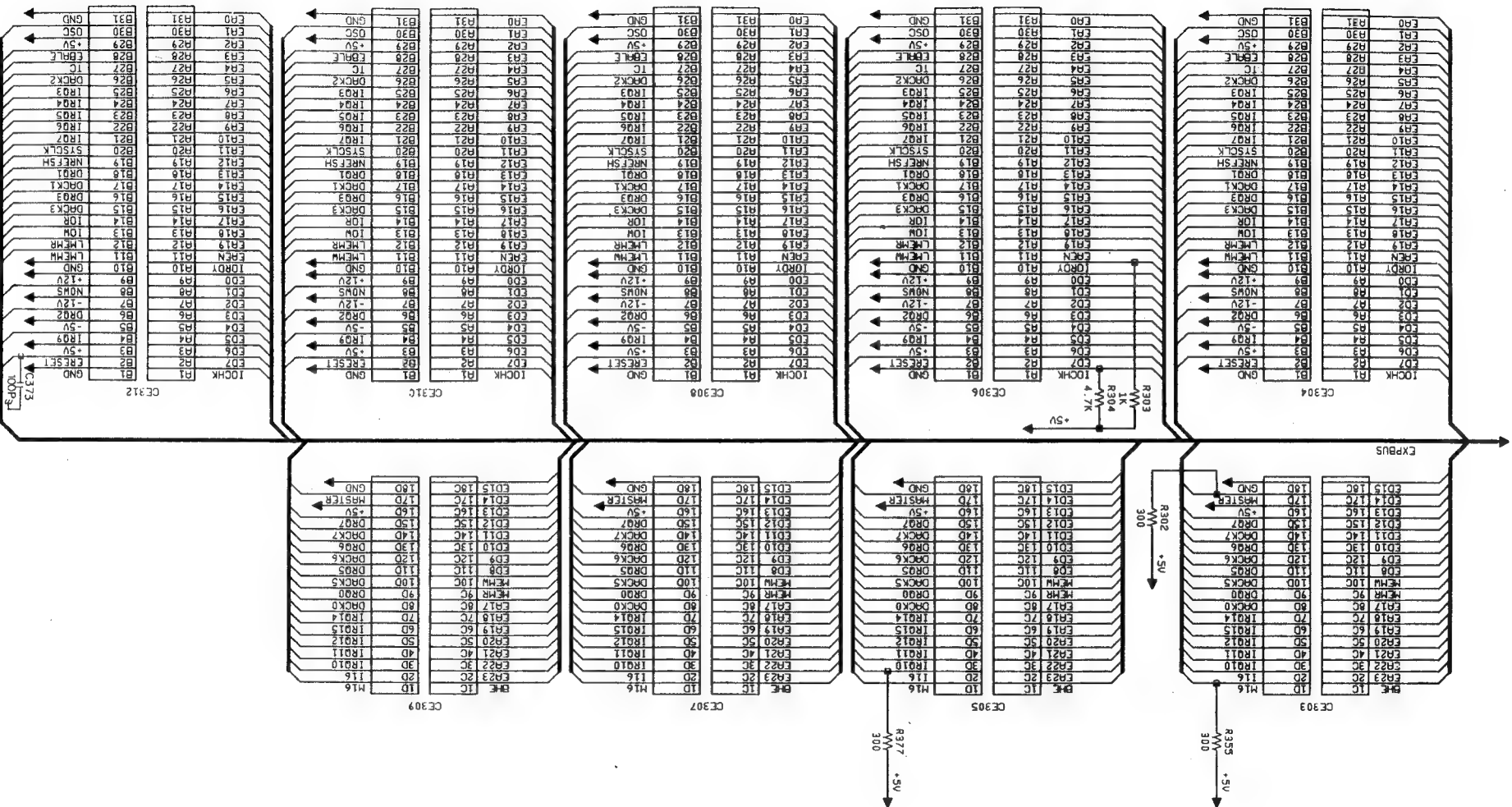
- Central Processor (PB103,4,5):** A central component with pins 1 through 26, including VCC, VSS, WE, RAS, CAS, CS, DIN, DOUT, and address lines A0 through A9.
- Image Sensors (UPD42100LR-10):** Eight sensors are arranged in a 2x4 grid. Each sensor has pins 1 through 26, including VCC, VSS, WE, RAS, CAS, CS, DIN, DOUT, and address lines A0 through A9.
- Power Supply:** 12V0.1 power supply lines are connected to the VCC pins of all sensors and the central processor.
- Signal Lines:** Address lines (A0-A9), data lines (DIN, DOUT), and control lines (WE, RAS, CAS, CS) are connected between the sensors and the central processor.

The diagram is labeled with component names and pin numbers, providing a detailed view of the hardware configuration.

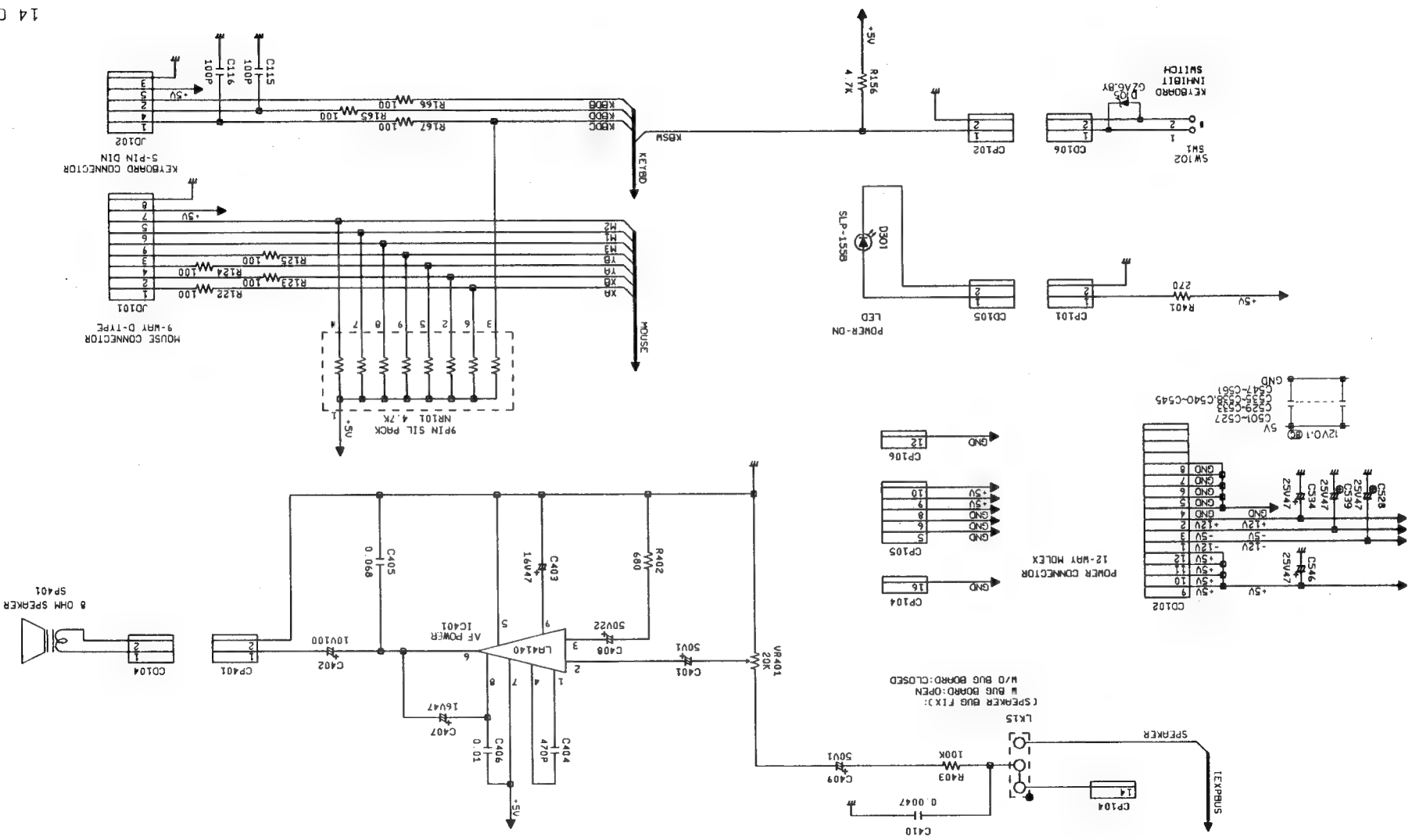
The schematic diagram illustrates a 16-bit parallel data bus system. It features two 8255 PPI controllers, PC8106 and PC8107, which manage the data flow between a central 16-bit data bus and eight 1Mbit DRAMs (K441C1000-10). The DRAMs are organized into two banks of four, each bank controlled by a PC8106/PC8107 pair. The diagram shows the internal structure of the DRAMs, including the 16-bit data bus (DIN/DOUT), 10-bit address bus (A0-A9), and 1-bit control bus (C0-C1). The PC8106 and PC8107 controllers are connected to the DRAMs via the 16-bit data bus and the 1-bit control bus. The PC8106 is connected to the DRAMs via the 10-bit address bus and the 1-bit control bus. The PC8107 is connected to the DRAMs via the 10-bit address bus and the 1-bit control bus. The diagram also shows the power supply connections for the DRAMs, including VCC, VSS, and VPP.

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CHASSIS SCHEMATIC DIAGRAM



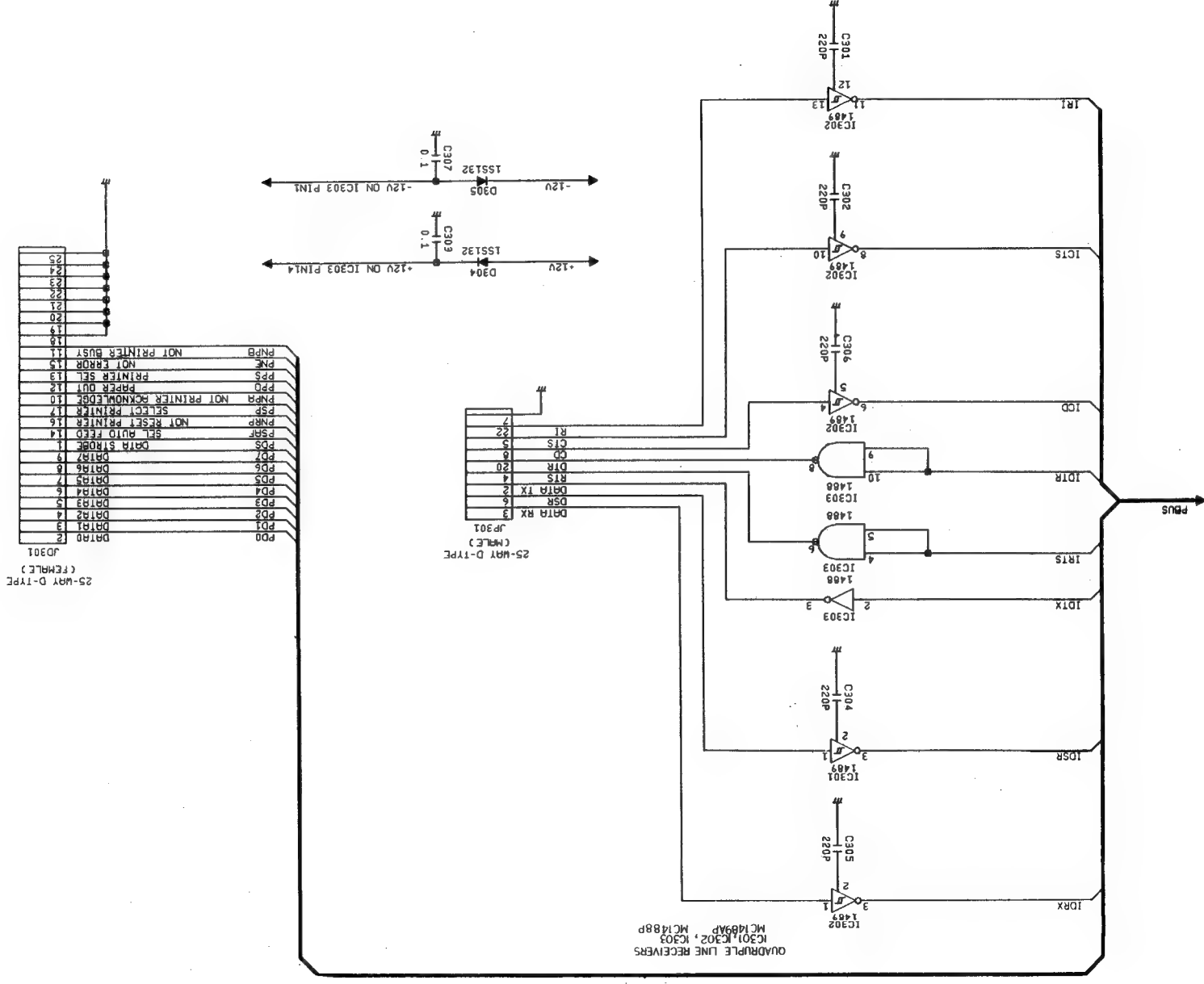
CHASSIS SCHEMATIC DIAGRAM



14 OF 20

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

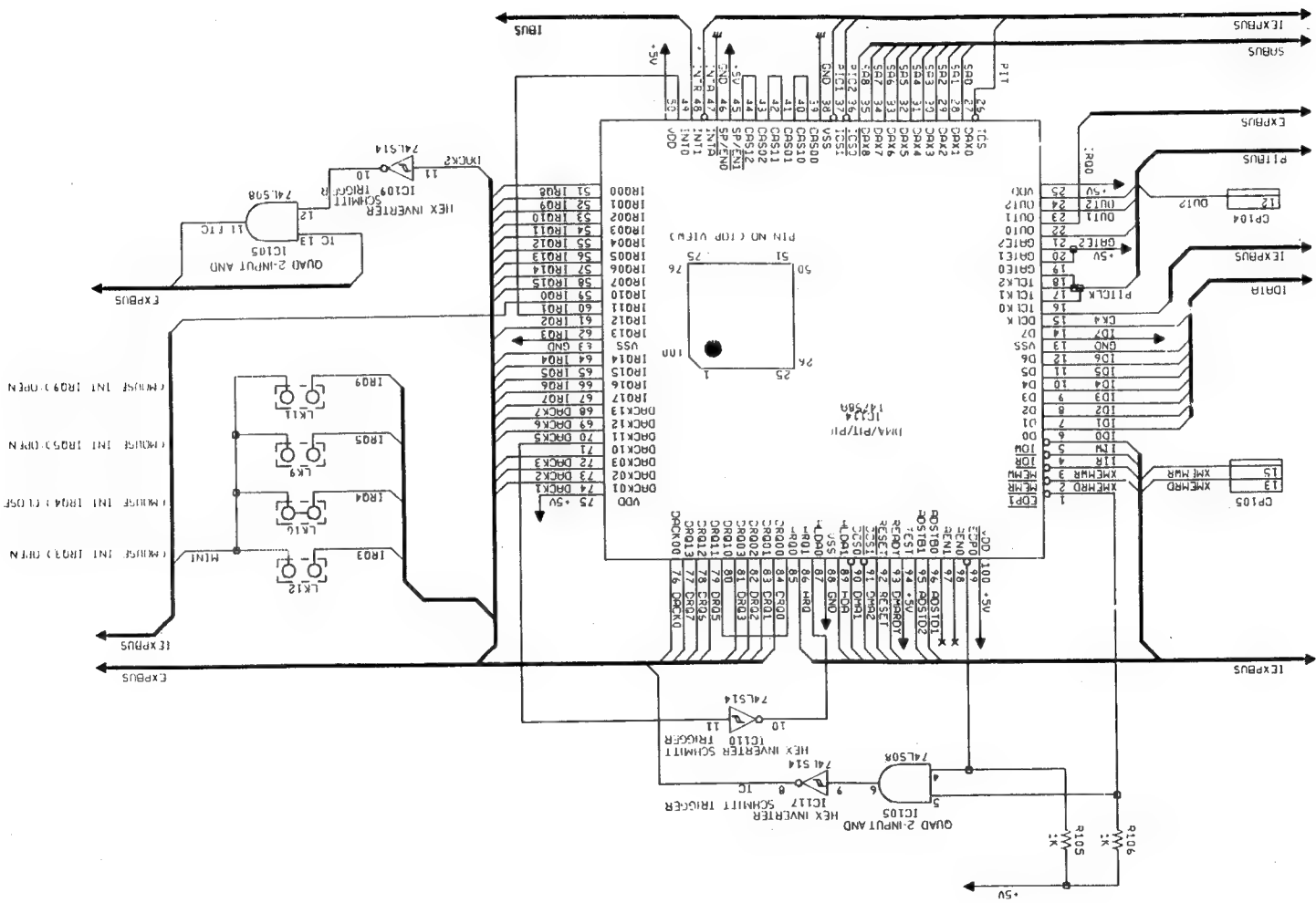
CHASSIS SCHEMATIC DIAGRAM



NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

4. OF 11

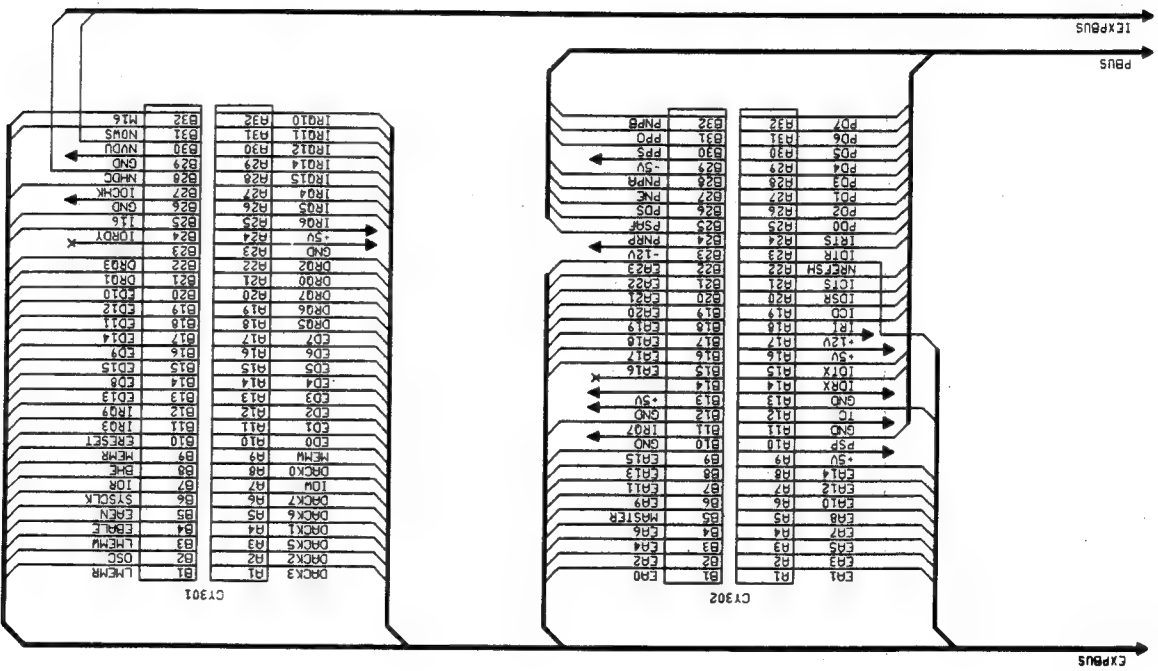
CHASSIS SCHEMATIC DIAGRAM



NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE

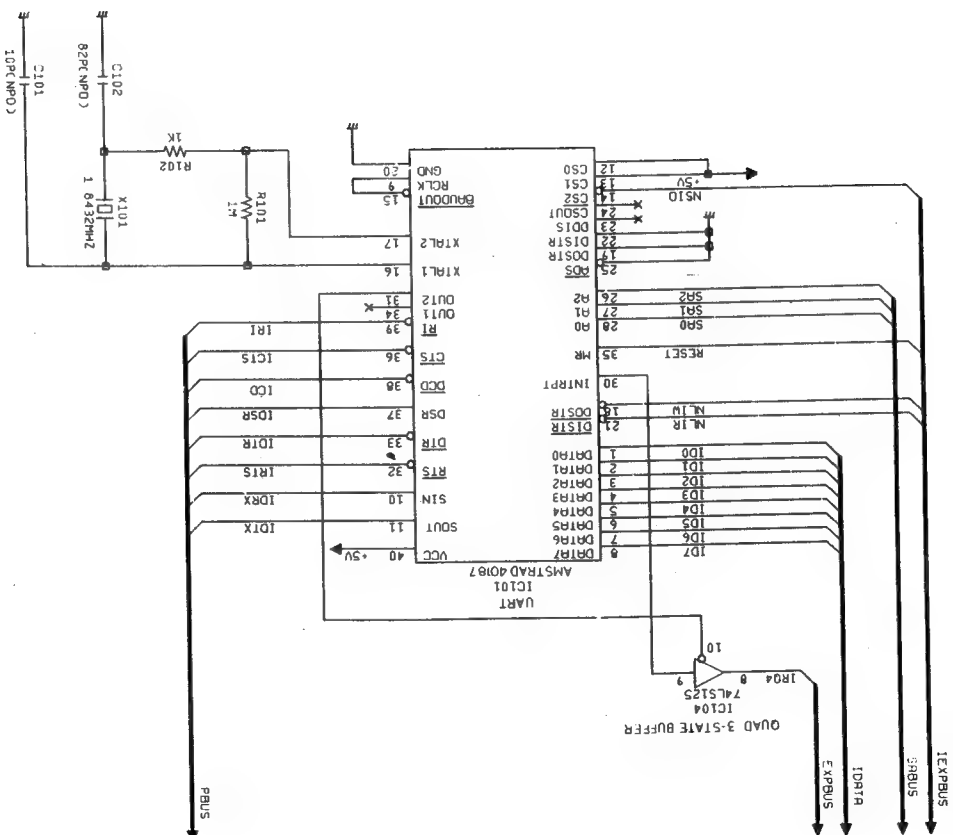
2-3231

CHASSIS SCHEMATIC DIAGRAM



NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

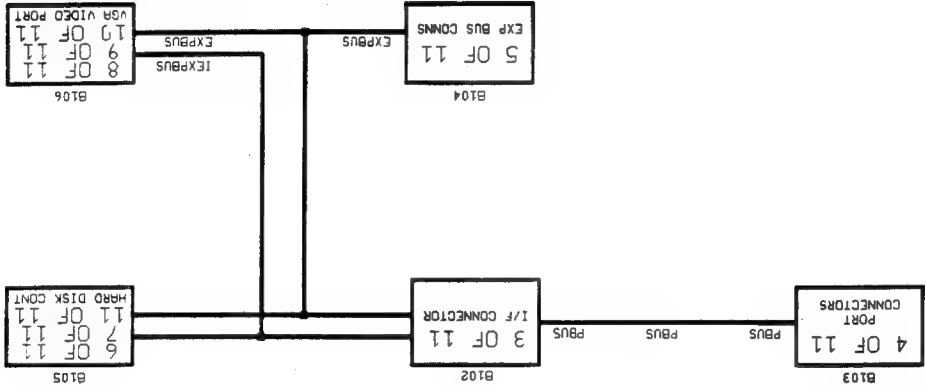
CHASSIS SCHEMATIC DIAGRAM



NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

2-3232

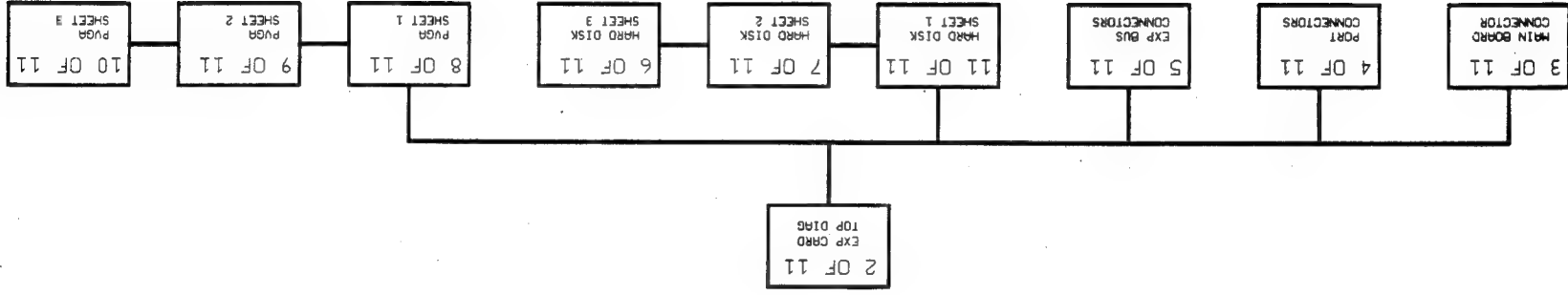
INTERCONNECTION DIAGRAM



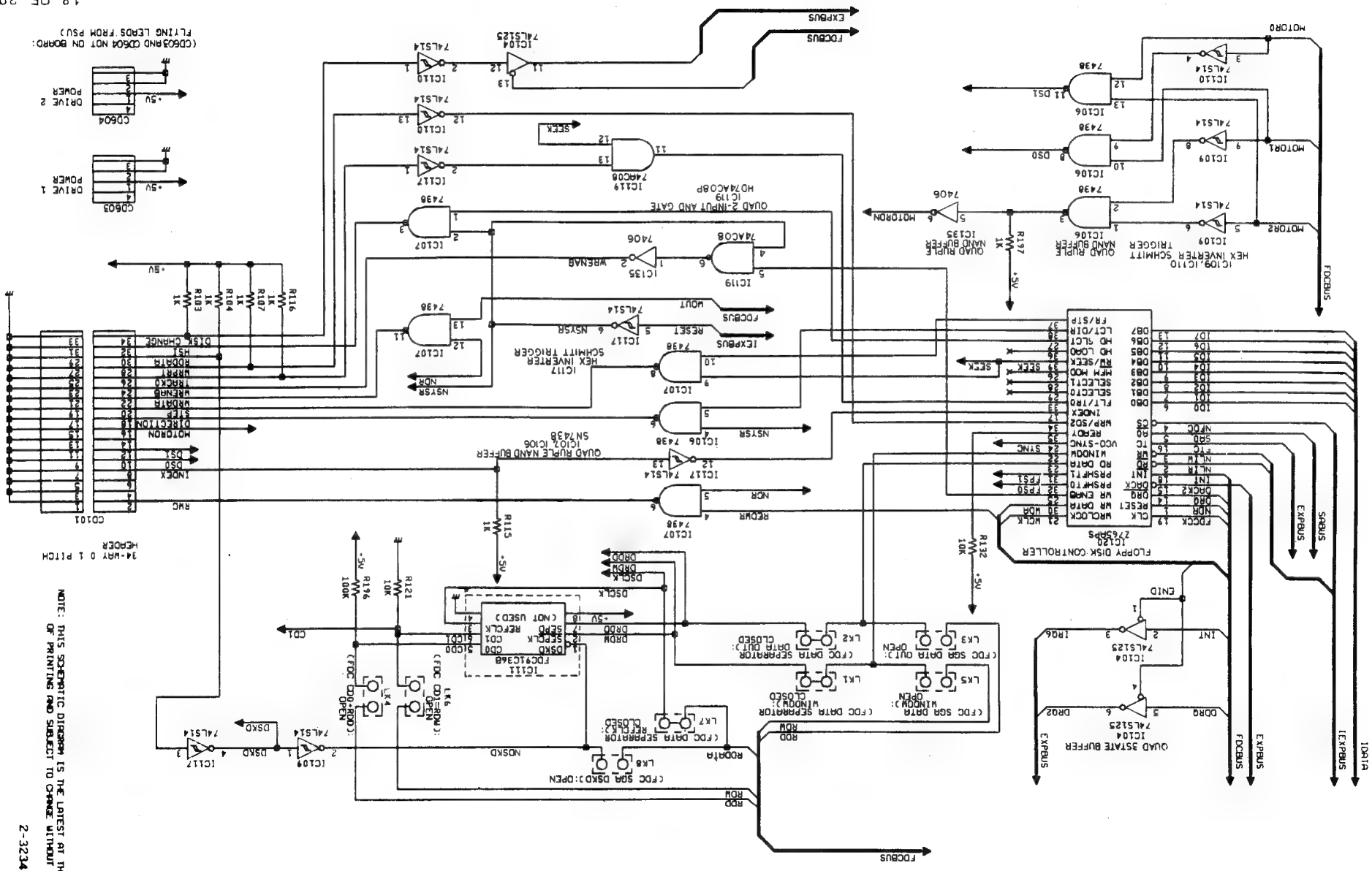
The block diagram illustrates the system architecture. At the top, there are two input ports labeled "PC90" and "P590". These connect to a central processing unit represented by a large rectangle. Below this unit, there are several output ports: "IEXPBUS", "MSBUS", "EXPBUS", "JEXPBUS", and "IDATA". The "IEXPBUS" and "MSBUS" outputs are connected to a vertical bus structure. The "EXPBUS", "JEXPBUS", and "IDATA" outputs are connected to a horizontal bus structure. A label "1907" is positioned near the bottom right of the main processing unit.



INTERCONNECTION DIAGRAM

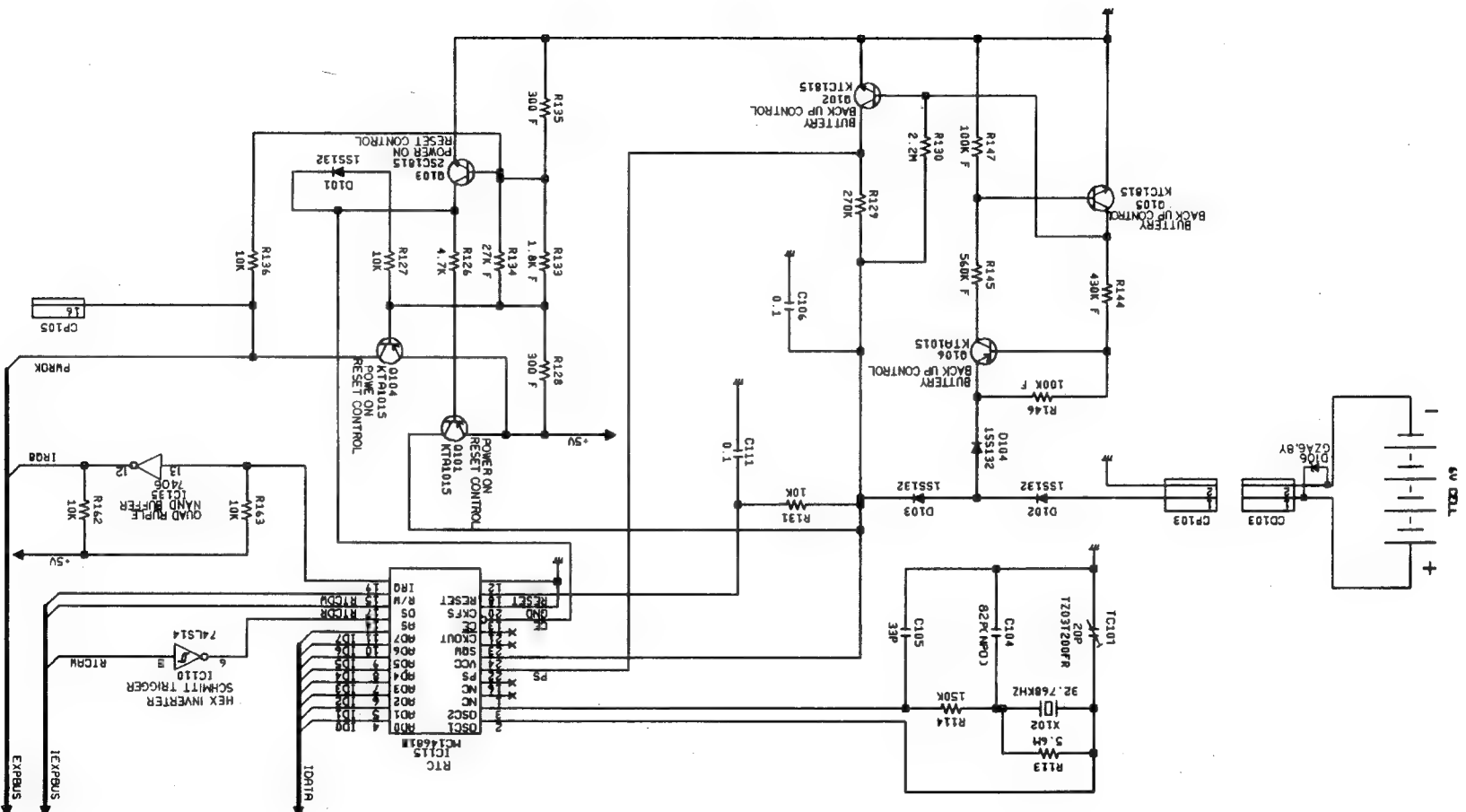


CHASSIS SCHEMATIC DIAGRAM



NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

CHASSIS SCHEMATIC DIAGRAM



NOTE: F, G, H, I, AND J MARKED AROUND THE PARTS
IN THE SCHEMATIC DIAGRAM INDICATES

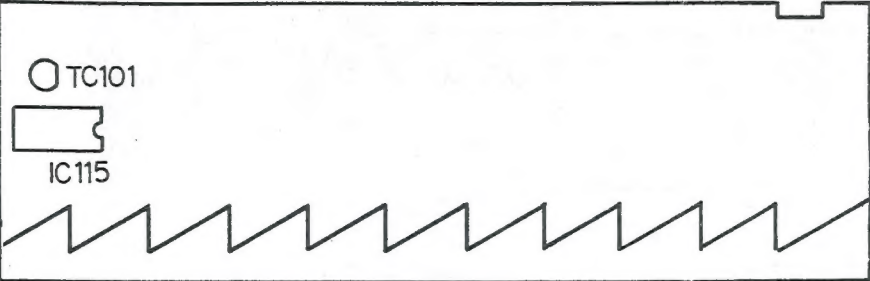
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE

PC2386 ALIGNMENT INSTRUCTIONS

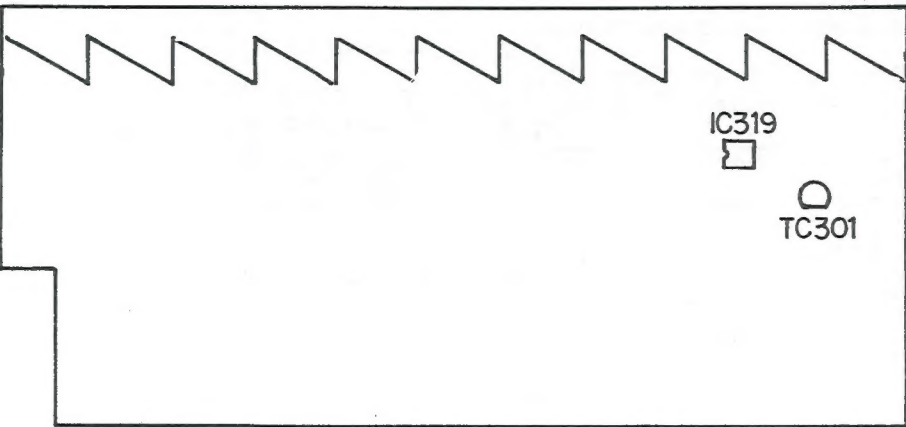
STEP	FUNCTION	SIGNAL IN	SIGNAL OUT	METHOD	REMARKS
1.	+5V D.C. Adjustment.	—	—	Connect D.V.M. to Test Point A & Ground. Adjust VR604 to read 5.00V ±0.05V D.C.	Refer to Fig. A.
2.	+12V D.C. Adjustment.	—	—	Connect D.V.M. to Test Point B & Ground. Adjust VR603 to read 12.00V D.C. ±0.05V D.C.	Refer to Fig. A.
3.	VCO Cont. Voltage Adjustment.	—	—	Connect D.V.M. to Pin 6 of IC316. Adjust TC301 to read 3.5V D.C.	
4.	Primary Protect Adjustment.	—	—	Turn VR601 anti-counterclockwise till the protection starts to cut in. Turn back a little to make it inactive.	
5.	R.T.C. Adjustment.	—	—	Connect Odometer to Pin 21 of IC115. Set the odometer to 0.2 sec/day setting and read "0.00" using TC101.	

MAJOR COMPONENTS LOCATION GUIDE

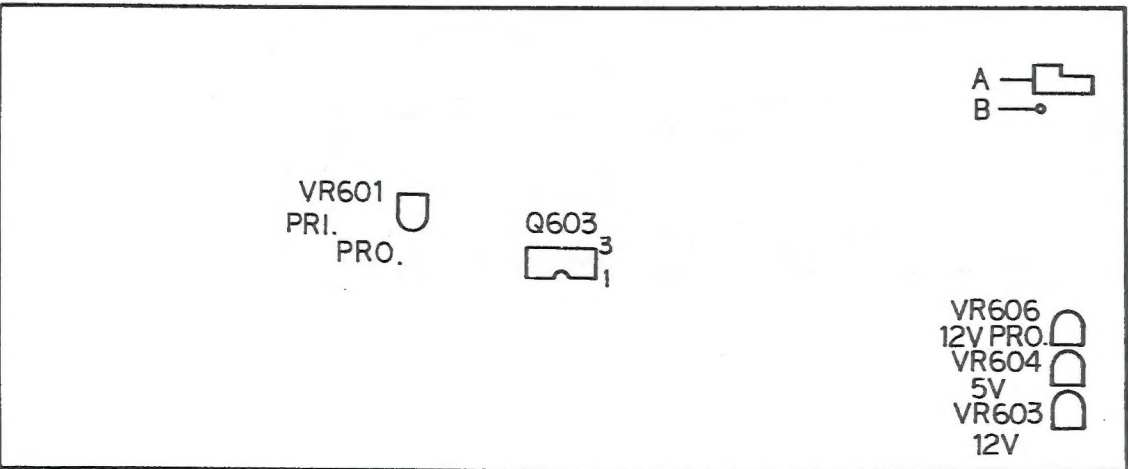
MAIN PCB



EX. PCB

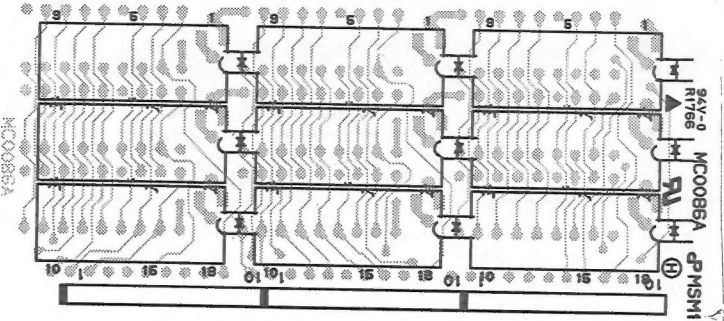


POWER PCB

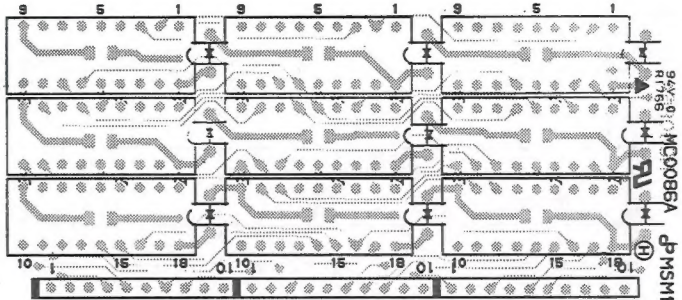


MEMORY P.C.B.

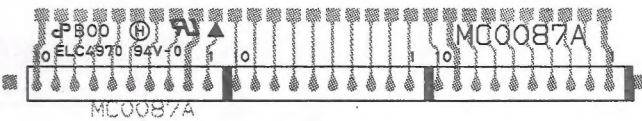
Top View



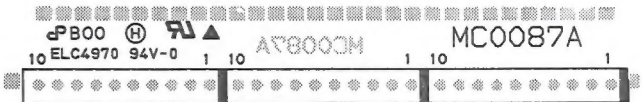
Bottom View



Top View

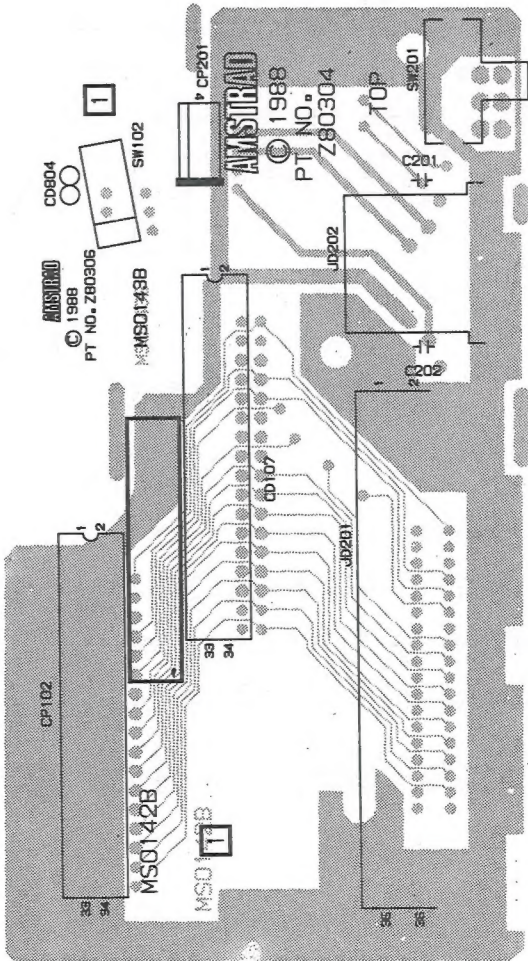


Bottom View



FDD EXPANSION SWITCH P.C.B.

Top View



Bottom View

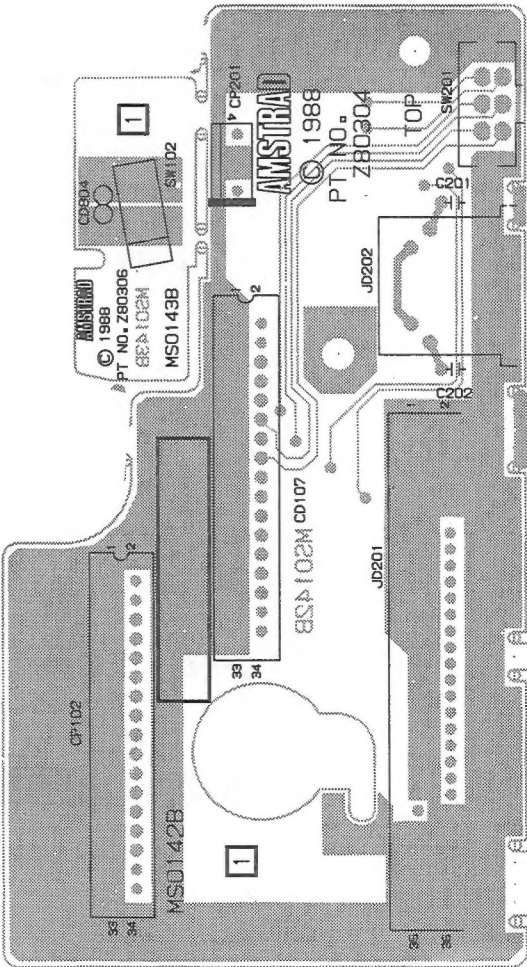
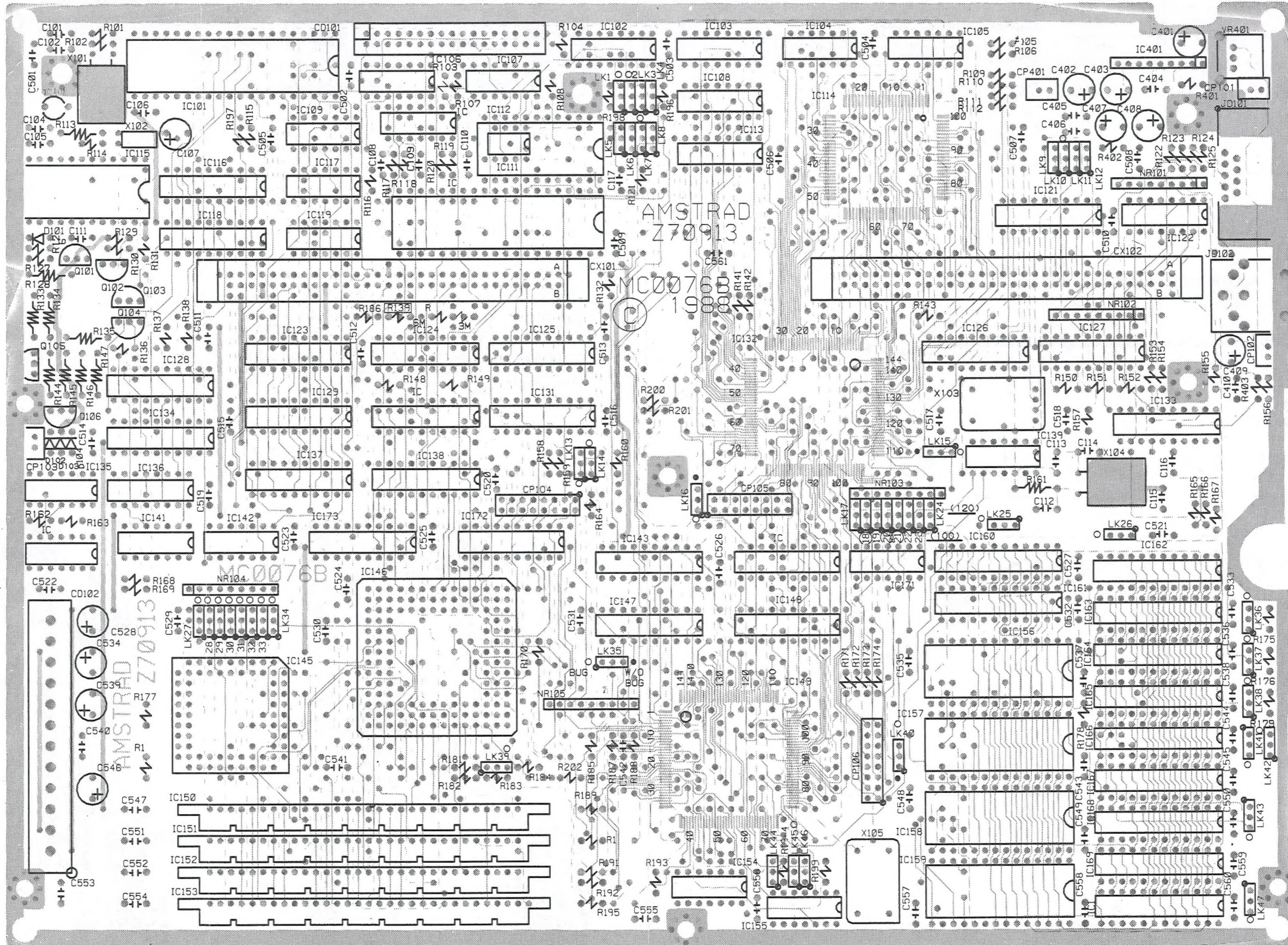
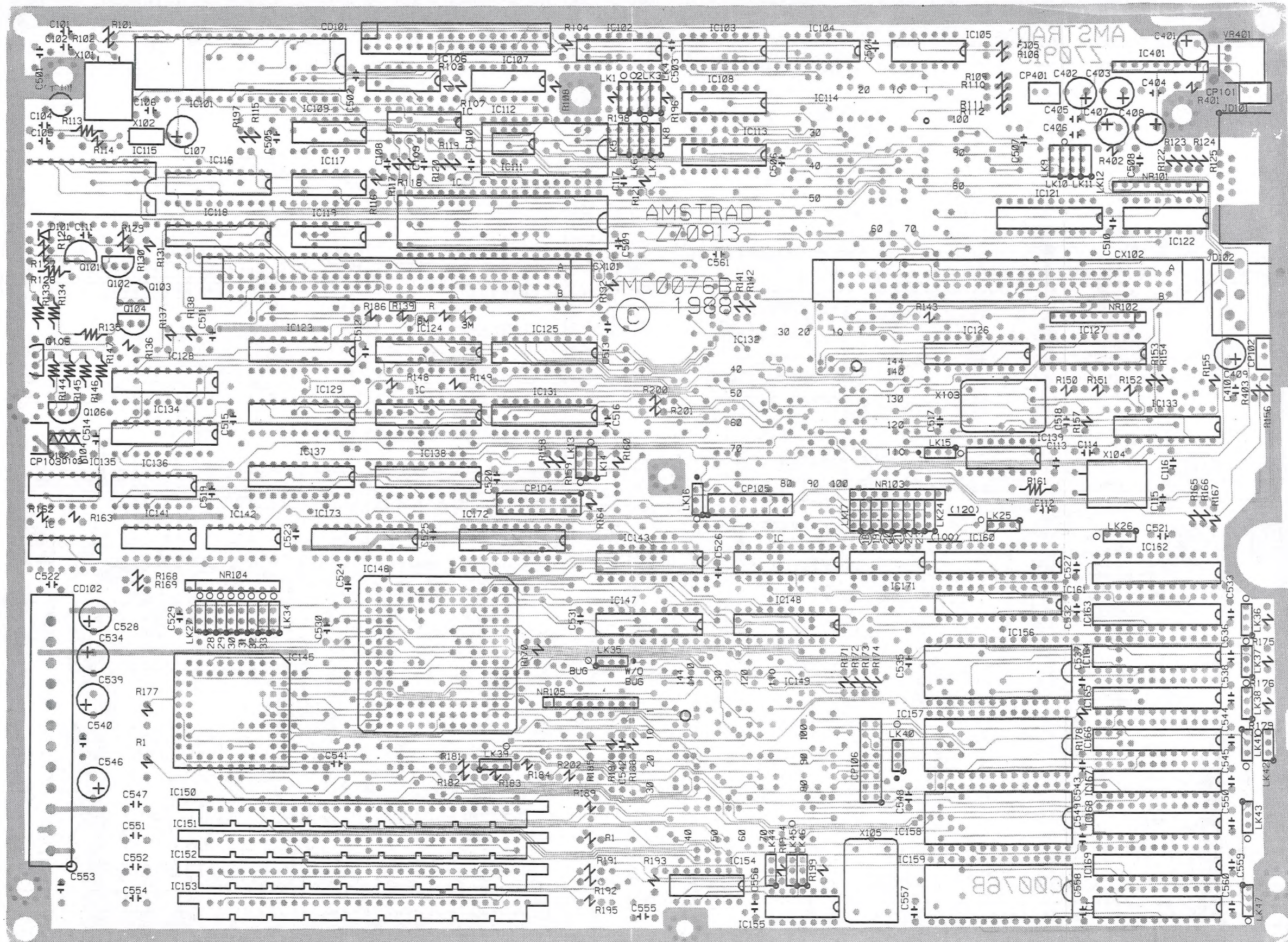


Fig. A

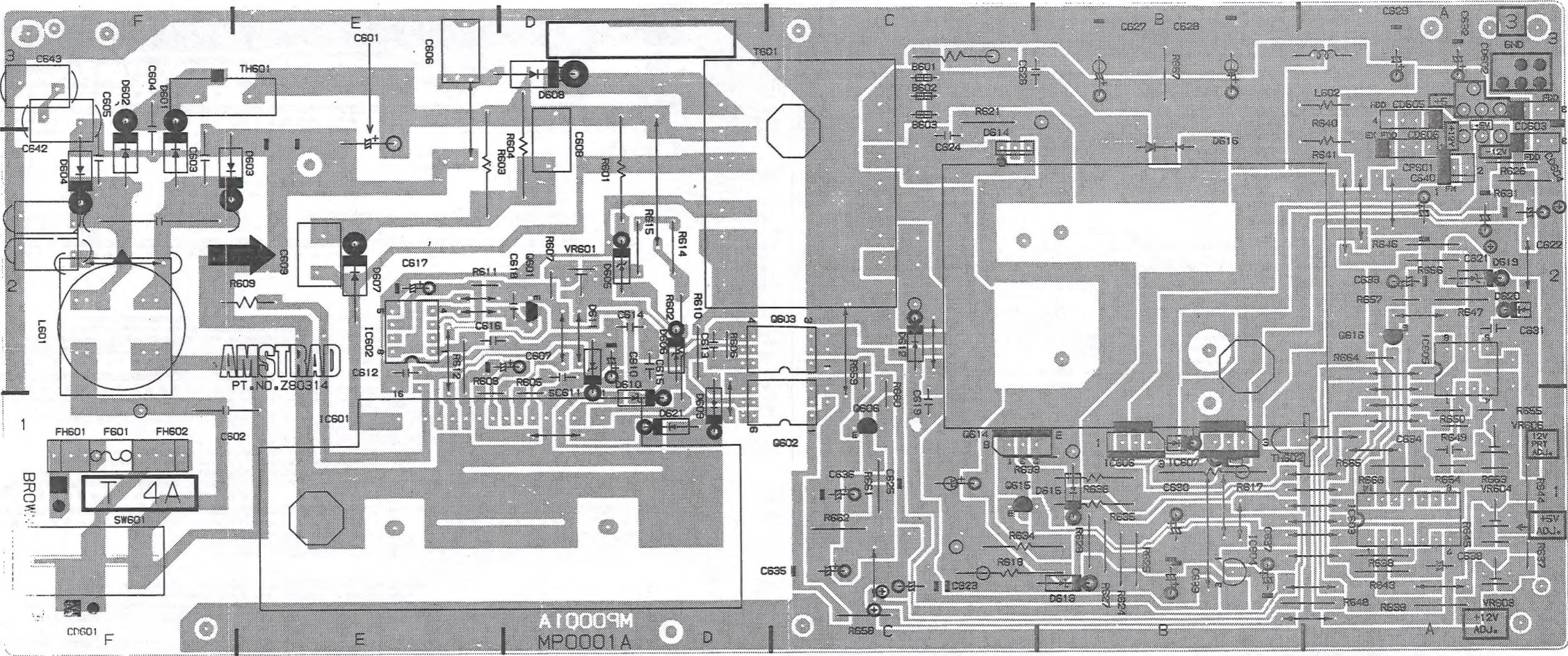
MAIN P.C.B. (Top View)



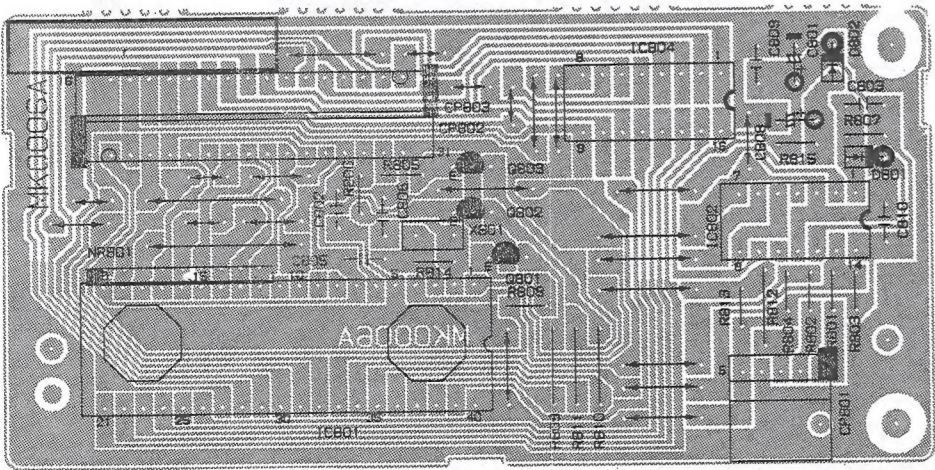
MAIN P.C.B. (Bottom View)



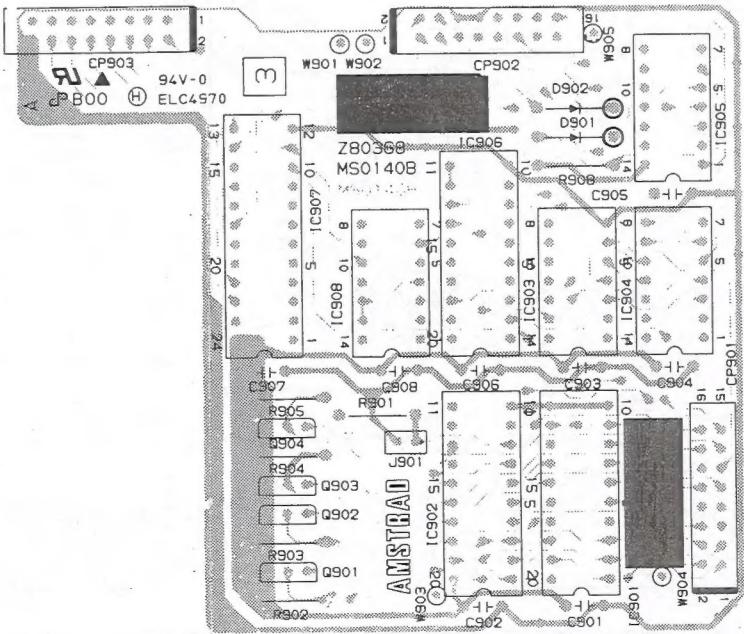
POWER P.C.B.



KEYBOARD P.C.B.

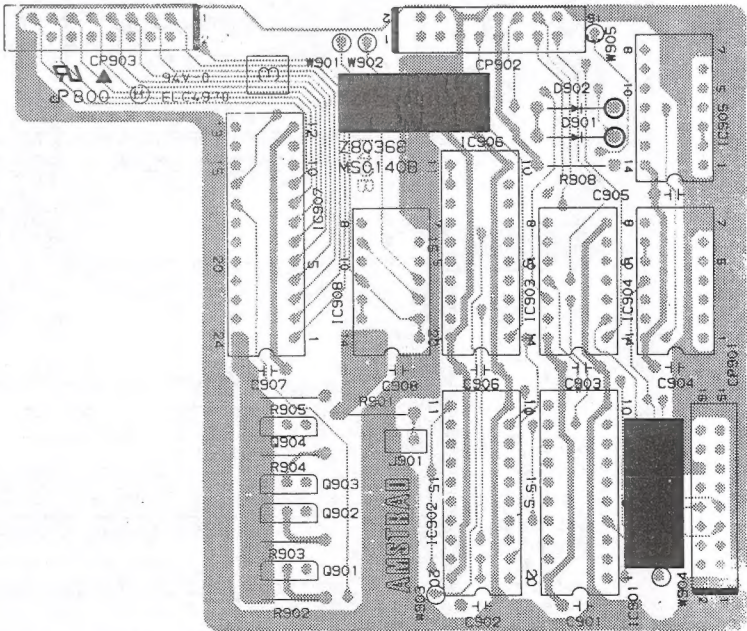


Top View



BUG P.C.B.

Bottom View



NOTE: Bug P.C.B. will change between first 30,000 units and next 30,000 units.